Cornell
SC Johnson College of Business

EMERGING MARKETS INSTITUTE

10 YEARS
EMERGING MARKETS INSTITUTE
BUILDING BRIDGES AND
ENCOURAGING DIALOGUE

EMERGING MARKET MULTINATIONALS REPORT (EMR) 2020

10 YEARS THAT CHANGED EMERGING MARKETS

Lourdes Casanova, Senior Lecturer, Gail and Rob Cañizares Director
Anne Miroux, Faculty Fellow

ISBN-13: 978-1-7328042-4-1
ISSN 2689-0127

Authors

Lourdes Casanova is the Senior Lecturer and Director of the Emerging Markets Institute in the Johnson School of Management, at Cornell University. Formerly at INSEAD, she specializes in international business with focus on emerging market multinationals. In 2014 and 2015, she was named one of the 50 most influential Iberoamerican intellectuals by Esglobal. She has also been a Faculty Fellow at the Atkinson Center for a Sustainable Future and was a Fulbright Scholar, earning her Master degree from the University of Southern California and her PhD from the University of Barcelona. She has been a visiting professor at the Haas School of Business, University of California at Berkeley; Judge Business School, University of Cambridge and Latin American Centre, University of Oxford; University of Zurich and Universidad Autónoma de Barcelona. She was a consultant with the Inter-American Development Bank and directed executive programs at INSEAD for senior managers including Telefónica, BBVA, Cemex and the Brazilian Confederation of Industries.

Lourdes Casanova's publications include: Entrepreneurship and the Finance of Innovation in Emerging Markets, Elsevier, 2017, co-authored with P. Cornelius and S. Dutta; the Emerging Market Multinationals Report 2016: The China Surge, co-authored with A. Miroux; The Political Economy of an Emerging Global Power: In Search of the Brazil Dream, Palgrave Macmillan 2014, co-authored with J. Kassum; and 'Global Latinas: Latin America's emerging multinationals' Palgrave Macmillan 2009. She also co-authored 'Innovalatina, Fostering Innovation in Latin America', Ariel 2011, and has contributed articles in journals including Beijing Business Review, International Journal of Human Resource Management, Business and Politics and Foreign Affairs Latinoamérica. She is a member of Latin America Global Agenda Council and the Competitiveness in Latin America taskforce of the World Economic Forum, the B20 Task Force on ICT and Innovation in G20 summit, Los Cabos (2012), and at INSEAD was responsible for the Goldman Sachs 10,000 women initiative. She is a board member of Boyce Tompson Institute, start-up Documenta. She is a founding Board Member of the Societé des Amis du Chateau de Fontainebleau and a member of the Advisory Council of the Tompkins Public Library. She is a founding board member of the Emerging Multinationals Research Network and co-founder of the Ithaca Hub of Global Shapers. Writer of an op-ed at Latin Trade and regular contributor to CNN en español http://cnnespanol.cnn.com/.

Anne Miroux is a Faculty Fellow at the Emerging Markets Institute, Johnson School of Management at Cornell University. She has over 30 years of experience in international trade and finance. She began her career in the United Nations Centre on Transnational Corporations in New-York, and later joined the United Nations Conference on Trade and Development (UNCTAD) where she specialized on developing country debt, foreign direct investment and transnational corporations, and technology and innovation policies. For several years she headed the Investment Analysis Branch in UNCTAD and directed the World Investment Reports (WIR), the United Nations flagship report on FDI and transnational corporations and served as the Editor of the UN Transnational Corporations Journal. She published a number of papers and articles and led research projects and technical assistance activities in developing countries on debt, FDI and development.

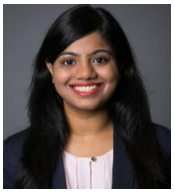
Until late 2015 Anne Miroux was the Director of the Division on Technology and Logistics in UNCTAD, and Head of the Secretariat of the UN Commission on Science and Technology for Development (CSTD).

She is a member of the Advisory Board of the Technology and Management Center of the Department of International Development at Oxford University. She is also a member of the Board of NetExplo. Anne Miroux has an MBA from HEC, Ecole des Hautes Etudes Commerciales, and a diploma from IEP (Institut d'Etudes Politiques – Paris). She holds a PHD in Economics from University of Paris I - Sorbonne.

Contributors

Momina Aijazuddin IFC's Global Head of Microfinance/ Financial Inclusion and works also as Principal Investment Officer in IFC's Financial Institution Group (FIG). She covers IFC's microfinance investment and advisory activities globally, which exceeds cumulative investments of US$6 billion worldwide with over 300 MFIs, in addition to advisory services worth $63.7 million in 68 projects across 30 countries. This includes oversight of the work in Responsible Forum (which IFC manages for the GPFI/ G20) and leading projects in digital transformation for MSME focused Banks and MFIs. She is leading IFC's efforts to scale up private sector commitments with strategic partners in the digital finance, microfinance and fintech space committed to achieving the World Bank Group's Universal Financial Access by 2020. She was also a core member of the drafting team for the G20 Digital Financia l Inclusion Principles. She manages the IFC Boulder strategic partnership and hosts the training for Boulder- IFC Strategic Leadership in Microfinance which has trained almost 350 leaders in the financial inclusion space. Momina brings over 25 years of investment transaction experience in financial services, microfinance and manufacturing sectors in over 60 countries across Africa, Asia, Eastern Europe, MENA and LAC regions. She has spent the last four years heavily engaged with IFC's financial inclusion efforts in China; including with leading banks and MFIs in dig ital transformation and fintech players. She was recognized as Global 100 top 100 women in 2019 FINTECH by Lattice80, a fintech hub. Momina has served on the Supervisory Board of the Microfinance Initiative for Asia (MIFA), a US$175 million debt fund, launched by IFC and KFW and managed by Blue Orchard and is currently on the Board of Microfinance Enhancement Facility (MEF).

Veneta Andonova Associate Professor and since 1st November 2019 Dean of Universidad de los Andes School of Management in Colombia. She got her Ph.D. degree in Management from Universitat Pompeu Fabra, Spain. She had been a full-time faculty at top business schools in Latin America and at the American University in Bulgaria. Her interests are at the intersection of bu siness strategy and institutional analysis with a focus on Latin American multinationals, non-market resources and entrepreneurial ecosystems in emerging markets. Her research was published in Entrepreneurship Theory and Practice, Journal of Business Research, Journal of Development Economics, Journal of Development Studies, Journal of Socio-economics, Telecommunications Policy, Review of Law and Economics among others. She is a regular presenter at international conferences. Her latest book is titled Entrepreneurial Ecosystems in Unexpected Places and was published in 2019 by Palgrave Macmillan.



Manisha Barnwal Senior Product Manager (Tech.) at Amazon. She received her MBA from the SC Johnson Graduate School of Management, Cornell University in 2020. She has expertise in various roles spanning the tech and finance industries in India. She founded a seed-funded startup 'Envoged' in the consumer tech industry in India, following which she oversaw the mobile platforms in Pepperfry, a Series-F Indian ecommerce company. Manisha also has two years of experience in the Finance industry. She worked at Bank of America as an Investment Banking Analyst in the healthcare sector. She holds a degree in Metallurgical Engineering from Indian Institute of Technology, Kharagpur (2013).

Limin Chen Professor in the School of Economics & Management at Wuhan University. She is also the director of Centre for Global Strategy at Wuhan University. She received her Ph.D. from Wuhan University in China, and was once a visiting professor at the Stern Business School of New York University in 2008. Her research interests are global strategy and institutional complexity, especially for Chinese multinationals.

Anabella Davila (Ph. D. The Pennsylvania State University) is a Professor of Management and Strategy and the Research Chair of the Strategy and Management in Emerging Economies Group. Previously, she was the Ph.D. in Business Administration Program Director and Research Director at EGADE Business School Monterrey, Tecnologico de Monterrey, Mexico. She has co-edited several books, research chapters, and journal refereed articles on Latin American work culture and human resource management. In addition to culture and human resource management in Latin American organizations, her current research interest includes human development and social sustainability. Dr. Davila has been a guest professor and invited researcher at several national and international universities. She is currently an active member of the Academy of Management, Mexican Academy of Sciences, National Researchers System (CONACYT) in Mexico, Tier II, Founding member of the Emerging Multinationals Research Network (EMRN), and certified evaluator of the National Quality Award. Dr. Davila has received numerous awards and recognitions for her teaching and resear ch achievements, including the Teaching and Research Award from EGADE Business School; TEC's Women Research Award; CLADEA Best Paper in the Leadership and Human Capital Management Track; Women in Science Program of the State of Nuevo Leon; Best Paper ACACIA; Best re-designed course EGADE Business School; BALAS Thunderbird Award for the best empirical research paper; BALAS Sion Raveed Award for the best theoreti cal paper; and, the Research Award of the University of Monterrey where she formerly worked. Dr. Davila earned her bachelor's degree in Psychology from the Universidad Regiomontana in Monterrey, her MBA degree from the Universidad Autónoma de Nuevo León, and her Ph.D. in Education al Administration from The Pennsylvania State University with the support of the USAID Fulbright Foreign Student Program. Her expertise is

Organization and Management, Strategic Human Resource Management, Strategic Management, Social Sustainability, Human Development, and Labor Culture. She teaches the courses: Strategic Management, Strategy and Management in Latin America, Introduction to Management in Latin America and, Methodology.

Paloma Fernández Pérez Ph.D. in History, University of California at Berkeley 1994. Professor of International Business History and Family Businesses, Department of Economic History and Institutions, Faculty of Economics and Business, University of Barcelona, Spain. Research interest has focused on family businesses, innovation, internationalization cross-cultural management, entrepreneurial networks and diasporas in emerging economies of past and present times. She is currently principal researcher of a competitive public research project and participant in a European Union Horizon 2020 RISE project involving 16 centers of three continents. Her current research focuses in the emergence of a manageurial revolution in new large hospitals of the world in the first half of the 20th century (forthcoming book in Emerald Publishers). Awarded twice the ICREA Academia distinction to excellence in research (2008-2018), and awarded the best book in economic history by the Spanish Association of Economic History in 2018 for a collective book on family businesses in Latin America and Spain. Trustee of the Business History Conference. Former associate Editor of the journal *Business History*. Co-editor in chief and founder of the *Journal of Evolutionary Studies in Business*. Council board member of *Enterprise&Society.* Founder and coordinator of the *Network of Interdisciplinary Research in Family Firms.* She has coedited with A. Lluch *Familias empresarias y grandes empresas familiares en América Latina y España* (Bilbao, FBBVA 2015, awarded best book by Argentinian Institute of Family Firms in 2016) and Evolution of Family Businesses (Cheltenham, Edward Elgar 2016, awarded best book by Spanish Association of Economic History). Coedited with C. Lubinski and J. Fear *Family Multinationals* (NY, Routledge, 2013), and with A. Colli *The Endurance of Family Businesses* (NY, Cambridge University Press, 2013). Recent articles: "Learning from Giants. Early exposure to advanced markets in the growth and internationalisation of Spanish health care corporations in the twentieth century", *Business History* (2017); and "Imprinting and early exposure to developed international markets: The case of the New Multinationals", *Business Research Quarterly* (2018), with N. Puig, E. García-Canal and M. Guillén. She has recently guest edited with P.-Y. Donzé an special issue on the Health Care Industries for *Business History.*

Peter Gammeltoft Professor of International Business at the Department of International Economics and Management, Copenhagen Business School. His research focuses on economic and technological change in emerging economies, particularly the globalization of innovation, with East Asia as the primary area specialization. His current research focuses on outward investments from emerging economies, especially strategic asset-seeking investments, and he has been running an international conference series at Copenhagen Business School dedicated to the topic since 2008. Among his publication outlets are Asia-Pacific Journal of Management, Journal of International Management, International Journal of Technology Management, European Management Journal, and International Migration. He has carried out consultancies for the European Commission and the Danish Ministry of Foreign Affairs. He teaches subjects on emerging economies and international management and strategy. Before pursuing an academic career, he worked as a senior consultant with Accenture in organizational development and healthcare information systems.

Juana García Associate Professor at the Business School from Universidad de los Andes, Colombia. Her research activity in international development includes: (i) the role of international cooperation and private sector in peacebuilding process and the study of (ii) internationalization and emerging economies. She is part of the MOC Microeconomics of Competitiveness leading by Harvard Business School and the EMRN Emerging Markets Research Network.

Andrés Guerrero Alvarado Director of the Center for Entrepreneurship at the School of Management at Universidad de los Andes. He joined 12 years ago as Director of the New Ventures and Bid Network acceleration programs focused on socio-environmental ventures and later as a research professor. His area of interest is entrepreneurship, particularly the early stage financing and impact investing, with several publications on these topics. He has worked with the Government of Colombia for more than 15 years in charge of economic and financial issues related to sustainability and green business development from the Ministry of the Environment and the Natural National Parks Unit. He has been a consultant for different national and international organizations on green business issues, entrepreneurship financing and business development such as the World Resources Institute, The Nature Conservancy, the Inter-American Development Bank, Rainforest Alliance, FUNDES-PROPEL, Coralina, CAR, and the Secretariat of Economic Development of Bogotá. He is a serial entrepreneur in tourism and information and financial services. Economist from Universidad de los Andes, Magister in Environmental Economics and Natural Resources from the University of Maryland (USA), Magister in Business Administration from the University of Tulane (USA), and Ph.D Candidate in Behavior and Organizational Strategy from the University of Tulane. Member of the Impact and Sustainable Finance Faculty Consortium led by the Kellog School of Business and the National Impact Investing Board in Colombia.

Xiaojun Huang EVP, Senior Financial Economist, Bank of China, USA, Mr. Huang's job responsibilities include risk-based strategic planning, macroeconomic and banking research, as well as executive training. Before working for BOC, Mr. Huang had extensive experience working for the securities industry in both China and the US. In 1989, he was one of the pioneer members who did foundation work for the Shenzhen Stock Exchange. Mr. Huang serves as a board member of China International Finance Society, a member of the New York Economic Club, and an advisory board member of EMI, Johnson, Cornell University. He has published many financial articles and several financial books. The Euromoney Yearbook has used his article as an investment guide for institutional investors. He is a Cornell Alumni with a MBA degree. He also received a portfolio management certificate from NYU and a bank strategy certificate from the Wharton, UPenn.

Gautam Jain has over 20 years of experience covering global emerging fixed income markets, both as a strategist and a portfolio manager. He has worked in buy-side and sell-side firms, including The Rohatyn Group (TRG Management), Barclays Capital, and Millennium Partners. He has helped manage emerging markets local-currency and hard-currency debt funds. The assets that he covers include currencies, interest rates, sovereign credits, and related derivatives. He specializes in portfolio construction, smart-beta index creation, and asset allocation. Mr. Jain holds a Ph.D. in Operations Research from Columbia University and is a CFA charter holder.

Amadeo Jensana Director of Economic Programs, CASA ASIA, Sant Cugat Del Valles, Spain.

Isya Kresnadi Economic affairs officer at UNCTAD. She received her training in economics from University of Indonesia, and a Master's degree from Columbia University's School of International and Public Affairs where she focused on international economic policy. Her work experience and research interest intersects between foreign direct investment, macroeconomics, and policy in developing countries.

Mike Peng (PhD, University of Washington) is the Jindal Chair of Global Strategy at the Jindal School of Management, University of Texas at Dallas. He is also Executive Director of the Center for Global Business. With over 150 journal articles, five books, and over 50,000 Google citations, he is widely regarded as one of the most prolific and most influential scholars in global business strategy. Both the United Nations and the World Bank have cited his work. Every year since 2014, he has been found among Highly Cited Researchers, a list compiled by Thomson Reuters/Clarivate Analytics, which tracks the top 1% most cited researchers worldwide (annually about 3,000 in all fields and only about 100 in the broad field of economics and business). His best-selling textbooks, Global Strategy, Global Business, and Global, are used in over 40 countries, and are available in Chinese, Portuguese, and Spanish. Peng is a National Science Foundation (NSF) Career Award winner and a Fellow of the Academy of International Business (AIB) and Asia Academy of Management (AAOM). His consulting clients include AstraZeneca, Ericsson, Texas Instruments, UK Government Office for Science, and The World Bank.

Zhi Qiao PhD candidate in the School of Economics & Management at Wuhan University. She is also a member of Centre for Global Strategy at Wuhan University. Her research interests are global strategy and power-dependence relations.

Ravi Ramamurti University Distinguished Professor of International Business & Strategy and founding Director of the Center for Emerging Markets at Northeastern University. He studies strategy and innovation in emerging markets. He earned his MBA from IIM-Ahmedabad and his DBA from Harvard University. Ravi has been a visiting professor at HBS, Wharton School, MIT-Sloan, Fletcher School, CEIBS-Shanghai, and IMD-Switzerland. His eight books include three published by Cambridge University Press on the internationalization of emerging-market firms. His latest book, Reverse innovation in health care, was just published by HBR Press (2018). In 2008 Ravi was elected an AIB Fellow. In 2017, his article on reverse innovation (2011) won the inaugural prize for Best Article published in Global Strategy Journal. He has published in the top academic journals and in practice-oriented journals such as Harvard Business Review. He has worked in more than 20 emerging economies and been a consultant to many global organizations.

Ruihao Xie CFA, is an Senior Associate at the Strategy and Research Department in Bank of China, USA. His research focuses on the US and global macroeconomic analysis, financial business development, and quantitative research on financial markets. Mr. Xie earned his Master's degree in Quantitative Economics and Econometrics from Tufts University and has a Bachelor in Economics from Peking University, China. He is also a Chartered Financial Analyst (CFA) charter holder.

Zhaohui Xuan Professor in Chinese Academy of Science and Technology for Development (CASTED). He is the director of Institute of Science and Technology Statistics and Analysis. His research focuses on science and technology statistics, science and technology indicators and innovation survey. He is one of the co-authors of China Science and Technology Indicators and National Innovation Index Report, which were released by Scientific and Technical Documentation Press of China.

James Zhan Senior director at UNCTAD. He leads the UN World Investment Report and is editor-in-chief of the Transnational Corporations Journal. He chairs the Governing Board of the UN Sustainable Stock Exchanges Initiative (with members of all major stock exchanges worldwide). He has directed extensive research on key issues and facilitated the formulation of outcomes at various international summits. He has also provided policy advice to governments (including heads of states and cabinets) and parliaments in numerous countries. He led the formulation of global guidelines for a new generation of investment policies and the establishment of the UNCTAD World Investment Forum. He is chief strategist for the World Association of Investment Promotion Agencies. He has held several advisory positions in academic institutions (including Cambridge University, Columbia University, Cornell University, Oxford University and the University of Geneva), and professor at Nankai University (Ph.D supervisor). He was research fellow at Oxford University and Global Agenda Council member of the World Economic Forum. He has published extensively on trade, investment and technology-related economic and legal issues. He appears frequently in international media outlets.

EMI Research Team, Cornell University

Daniel dos Anjos Holds a bachelor's degree in Economics Science from Universidade Federal de Viçosa, Brazil. Daniel has worked on data analysis since 2012, performed on Finance Planning strategies and Risk Management reports for multinational companies. He joined the Research Team at EMI in 2019 and has helping with the coordination of research activities.

Mihika Badjate is a sophomore studying economics in the College of Arts & Sciences. Other than emerging markets, her interests include reading, hiking, traveling, and learning new languages.

Klaudia Kokoszka Recent graduate of Cornell University, with a B.A. in Economics and Government. Currently, she works as a Junior Research Scholar at NYU's Center for the Globalization of Education and Management. Prior to this, she worked as a research assistant for the Emerging Markets Institute (EMI). Her research interests include public policy, economic development, data analytics and trade.

Andrew H. Lim Freshman at Cornell University studying Economics and Philosophy with the interest in minoring in business and religious studies. His research interests include emerging markets, globalization, public policy, and finance.

Eudes Lopes Cultural anthropology PhD student at Cornell University. Eudes holds a bachelor's degree in anthropology and public policy from Princeton University. His research interests focus on the cultural relevance of economic thought and its embeddedness in the financial markets.

Vineetha Pachava Junior at Cornell University, studying Applied Economics and Management, concentrating in international trade and development, and finance. Her research interests include emerging markets, macroeconomics, finance, and public policy.

Preface

2020 has been a tough year. This year, our world has been rocked by a global pandemic the likes of which we have not seen for many decades. The human cost in terms of infections, illness, and death has been tragic. Some have estimated the economic toll to be escalating into the tens of US$ trillions. A few months ago, the IMF's World Economic Outlook was released in which the world output projections were downgraded a second time to as low as -5.5% for 2020 and in which a tempered rebound of 5% is ahead for 2021. Some of the toughest projections lie in the emerging markets, such as India, Latin America especially Mexico, and parts of Africa especially South Africa. China has been the most resilient in 2020 and 2021. From a capital markets perspective, emerging markets have been nothing if not volatile. Investment flows fell through the floor in March cumulatively reaching $80 billion in outflows, especially in emerging market equities. We had not seen a capital stop this dramatic in 30 years. The rebound in flows in April unmasked a kind of a whipsaw effect that was just as remarkable. Again, portfolio inflows into China buoyed the overall capital shift.

2020's edition of The Emerging Market Multinational Report has a special theme this year – 10 years that changed emerging markets. And change, they have, of course! Lead co-authors, Drs. Lourdes Casanova and Anne Miroux, have rededicated themselves to capturing the distinctive theme of our Emerging Market Institute's (EMI) core theme about the rise of emerging multinationals, but they have done so in a special way. The reference in their title is to a 10th anniversary celebration we held for the launch of the EMI itself in 2010. I am proud to say I, as co-founder together with Professor Ya-Ru Chen, was there to see the institute come into being. Its original mission and purpose was straightforward – alumni and MBA students in the Johnson Graduate School of Management saw an acute need to train future business leaders for the special challenges of doing business in emerging markets. Dr. Casanova, EMI's Gail and Roberto Canizares Executive Director, took the mission of EMI to the next level with innovative thought leadership, an active emerging markets fellows program with alumni spanning the globe. We are so grateful for her hard work, but I know she would want to acknowledge the support from volunteer staff, PhD students visiting students, the advisory council members, distinguished alumni, and the leadership teams in the Johnson School and Cornell SC Johnson College of Business.

The 10-year reference point is not just about EMI's birthday celebration. The report uses the anchor of a decade to talk about how emerging market multinationals are now firmly engaging global (especially US-based) investors like never before, their greenfield investments overseas are expanding. There is extensive analysis of China as a global leader – reprising 2019's overarching theme – the rise of Korea, India, and Brazil. My favorite chapter in the report is the focus on improvements in education, technology and innovation, with some intriguing case studies about e-commerce firms. These chapters fit ideally with the sub-theme of the report which is about building bridges and encouraging dialogue.

The report in no way avoids addressing the COVID-19 pandemic as a crisis like no other in emerging markets. But it turns the focus to transformations induced by the pandemic and associated with global value chains, transformation of financial inclusiveness via financial technology (Fintech) firms, and digital transformation, overall, as a potential lever for recovery. An intriguing chapter here is that devoted to the study of talent competitiveness and how it is transforming, with a focus on Latin America, the challenges and opportunities in emerging markets. This topic focused on business leaders fits well with the original mission that we laid before us ten years ago when we launched EMI. I also like the new feature added this year of a series of half a dozen opinion pieces at the end of the report by invited a number of long-time friends and faculty advisory council members of EMI.

I congratulate once again the EMI on its 10th anniversary and thank Drs. Casanova and Miroux with their many collaborators for another relevant and timely Emerging Multinationals Report

Andrew Karolyi
Deputy Dean and College Dean for Academic Affairs
Professor of Finance and Harold Bierman Jr. Distinguished Professor of Management
Founding Co-Academic Director, Emerging Markets Institute
Cornell S.C. Johnson College of Business
Cornell University
Ithaca, NY

Acknowledgements

The Emerging Market Multinationals Report (EMR) 2020 was authored by Lourdes Casanova, Senior Lecturer, EMI Director, and Anne Miroux, EMI Visiting Fellow, at the Emerging Markets Institute (EMI), Cornell S.C. Johnson College of Business, Cornell University.

The authors are grateful to Daniel dos Anjos, for his contributions as the leading Research Assistants to the report, Vineetha Pachava, Klaudia Kokoszka, Mihika Badjate, Andrew Lim, Vritika Patni, Meghana Gavirneni, Shriti Mutha, Tyler Botzon, Daniel Andrade, Javier Rivardo Montenegro, Soraya Quiroga. The authors would also like to thanks Eudes Lopes for editing.

The report benefited from comments and discussions with Andrew Karolyi, Deputy Dean and Dean of Academic Affairs. Cornell S.C. Johnson College of Business and Harold Bierman, Jr. Distinguished Professor of Management; Ravi Ramamurti, Distinguished Professor of International Business and Director of the Center for Emerging Markets, Northeastern University; and Subramanian Rangan, Professor of Strategy and Management, INSEAD.

As last year, members of the Emerging Market Research Network participated in the preparation of the Report. We are thankful to OECD EMNet Development Center, UNCTAD, and World Bank IFC; and also the contributors for this report: Momina Aijazuddin, Manisha Barnwal, Veneta Andonova, Limin Chen, Anabella Davila, Paloma Fernández Pérez, Peter Gammeltoft, Andrés Guerrero Alvarado, Xiaojun Huang, Amadeo Jensana, Isya Kresnadi, Mike Peng, Zhi Qiao, Ravi Ramamurti, Ruihao Xie, Zhaohui Xuan, James Zhan.

Finally, our special thanks go to the EMnet team at the OECD Development Center, a close partner of EMI for several years now, which has contributed to the present report.

Table of Contents

List of Figures

List of Tables

Abbreviations and Acronyms

AACSB Association to Advance Collegiate Schools of Business
AMBA Association of MBAs
BPM Business Process Management
BRI Belt and Road Initiative
BRICS Brazil, Russia, India, China and South Africa
CARI China-Africa Research Initiative
CDB China Development Bank
CDEEE Dominican Republic State Electric Utility
Chaebol Korean family-run conglomerate
CNCPC National Petroleum Corporation
DOI Degree of Internationalization
DRAM Dynamic Random Access Memor
EBITDA Earnings Before Interest, Taxes, Depreciation, and Amortization
ECLAC United Nations Economic Commission for Latin America and the Caribbean
EQUIS European Quality Improvement System
EMI Emerging Markets Institute
eMNC Emerging Multinationals
EMNET OECD Development Centre's Emerging Markets Network
EMR Emerging Markets Report
ESG Environmental, Social and Governance requirements
FATA Foreign Assets to Total Assets
FDI Foreign Direct Investment
FDI RRI Foreign Direct Investment Regulatory Restrictiveness Investment
FERE Foreign Employees to Total Employees
FSTS Foreign Sales to Total Sales
FTAs Free Trade Agreements
GDP Gross Domestic Product
GDPR General Data Protection Regulation
GEIDCO Global Energy Interconnection Development and Cooperation Organization
GEGI Global Economic Governance Initiative
GFC Global Financial Crisis
GII Global Innovation Index
GICS Global Industry Classification Standard
GSM Global System for Mobile Communications
GVCs Global Value Chains
HACCP Hazard Analysis and Critical Control Points
HCBM Human-Centered Business Model
HMETC Hyundai Motor Europe Technical Center
IB International Business
ICT Information & Communication Technology
IDB Inter-American Development Bank
IEA International Energy Agency
IMF International Monetary Fund
INST-OUT Outer institutions
KEPCO Korea Electric Power Corporation
LAC Latin America and the Caribbean
M&As Mergers and Acquisitions
MDGs Millennium Development Goals
MNE Multinational Enterprise
NAFTA North American Free Trade Agreement
NOC Number of countries hosting overseas subsidiaries
NOS Number of overseas subsidiaries
OECD Organisation for the Economic Cooperation and Development
OFDI Outward Foreign Direct Investment
OSTS Overseas Subsidiaries to Total Subsidiaries
PBX Private Branch Exchanges
PPP Purchasing Power Parity
RBC Responsible Business Conduct
RES-IN Inner Resources
RES-OUT Outer Resources
RES-OUT-RAW Raw material-seeking
RES-OUT-TECH Technology-seeking outer resources
ROA Return on Assets
ROE Return on Equity
ROS Return on Sales
S&T Science and Technology
SAIS Johns Hopkins University School of Advanced International Studies
SDGs (United Nations) Sustainable Development Goals
SKMS SK Management System
SOE State-Owned Enterprise
SMEs Small and Medium-size Enterprises
STEM Science, Technology, Engineering & Mathematics
TPA Trade Promotion Authority
UN United Nations
UNCTAD United Nations Conference on Trade and Development
USMCA United States-Mexico-Canada trade agreement
VCR Video Cassette Recorders
WB World Bank
WCDMA Wide-Band Code Division Multiple Access
WEF World Economic Forum
WTO World Trade Organization

Executive Summary

For emerging markets, the past decade has been a period of deep and systemic transformation. These economies would grow, only to surface as key global investors, rising as major actors in the global innovation and technology landscape. The ascension of their own multinational corporations (eMNCs) exemplifies the high stakes and drama. To study the rifts and shifts in the global economy, to familiarize students with this new breed of enterprises, and to develop the next generation of business leaders, the Emerging Market Institute (EMI) was founded.

The ascent of **Emerging Markets Multinational Corporations** at the center of the Emerging Market Report (EMR) Series, a focus based on the premise that large, profitable and innovative firms should and do contribute to the development of their respective markets. Launched five years ago, the EMR builds on the research work undertaken by the EMI research team, as well as discussions with practitioners, colleagues from the Emerging Market Multinational Research Network, Cornell faculty, and of the EMI Advisory Faculty Board.

A particular focus on enterprises and corporate issues is one of the EMR's hallmarks, with analytical work sourced to streams of data from the Standard & Poor's Capital IQ, Financial Times FDI Markets, Bloomberg, Orbis, Factset and Ministry of Commerce of the People's Republic of China (MOFCOM). Concentrating on large companies, especially those in the Fortune Global 500, the EMR has explored the comparative advantages of these firms—from price comparison and cost structure, to market capitalization, brand recognition and corporate strategies. Likewise, it has studied over the years their internationalization, analyzing their Greenfield investments and outbound Mergers and Acquisitions (M&As), and revealing how important their global footprint is.

As we set our sights for this fifth edition in 2020, we reflected back to the past ten years and how they changed emerging markets. Projections could be made, extrapolating from the trends well underway. There were, looming threats and uncertainties, but, on the whole, the last years were positive and prospects remained so. This before the here and now, before the year of rupture—the worst pandemic and worst crisis of modern times. Emerging markets would be severely hit. They would however not be equally affected and the divide between China and emerging markets and Asia and Latin America, could be only further reinforced.

The report hence proceeds along two axes of analyses. One is the past ten years—a review of the growth and internationalization of eMNCs and their inroads on the global scene, paying heed to technology and innovation as one of the distinctive features of the past decade (Chapters 1, 2 and 3). The second examines the potential implications of the COVID crisis for emerging markets and their stakes (Chapter 4).

As in previous years, the Report shall ground its knowledge of emerging markets to the **E20** – a group of Top 20 emerging markets selected on the basis of economic and demographic weight. In this issue, the E20 includes the following countries: Argentina, Bangladesh, Brazil, China, Colombia, Egypt, India, Indonesia, Iran, Malaysia, Mexico, Nigeria, Philippines, Republic of Korea (also referred to as Korea in this report), Saudi Arabia, South Africa, Thailand, Turkey, Poland and the Russian Federation. As of 2019, The E20 would account for nearly 47% of world GDP on a PPP basis and for 56% of the world population.

Above all, this fifth edition is a marking of a milestone for the Emerging Market Institute, an intellectual hub that has brought together students, academics and practitioners from all around the world. This year no less, on the occasion of EMI's 10th anniversary, we benefit from special contributions of esteemed partners: the EmNet OECD Development Center, World Bank's IFC, UNCTAD, members of the Emerging Markets Research Network (EMRN), Wuhan University, of the EMI Faculty Advisory Board, and of the Advisory Council (see below)

Chapter 1 — The Decade of the Emerging Multinationals

The 2010s was a time-stretch of sweeping, record-shattering consolidations amongst emerging market multinationals, which made consistent gains in the value chain through increasingly global brands in a diverse range of sectors including banking, technology,

electrical vehicles, white goods, mobile telecoms and online retail. Korean companies, such as Samsung and LG, and Chinese firms, including Huawei, Xiaomi, Haier, Lenovo, ICBC, Alibaba and Tencent became household names all over the world. This chapter illustrates how eMNCs, largely led by Chinese and Koreans asserted their power, helming global league tables in multiple dimensions including revenues, market capitalization and market shares. It also highlights the shift toward Asia, portending realignments in the business world with implications for what is taught and researched in business schools and beyond.

Chapter 2 — Emerging Market Multinationals Firmly Setting Up as Global Investors

Chapter 2 reviews the internationalization of EMNCs through an analysis of their outward M&As and greenfield FDI projects. It examines the countries and sectors these firms are investing in and the factors driving their investments. The chapter probes the key role of M&A activity in the fast internationalization of Chinese and Korean companies. Chinese firms' expansion into the United States and Europe surged after the GFC. With the COVID crisis, however, they are focusing more on BRI countries. The chapter also provides benchmarking with the United States and other emerging markets.

Chapter 3 — Ten Years that Changed Emerging Markets

The 2010s was nothing short of a period of reckoning. Many trends and events sharpened the world's awareness of the relevance of emerging markets in the global economy, in geopolitics and as innovation and technology leaders.

The decade began and ended with crisis. Emerging economies harnessed the first, the Global Financial Crisis, boosting their participation in the global economy. Building upon progress achieved at the turn of the century, they moved swiftly and steadily ahead in global affairs. Their economies grew and poverty levels declined. They consolidated their role as major trade and investment partners, and emerged as key actors in global innovation and technology. They also launched key initiatives —the Belt and Road Initiative and the creation of the development banks, the NDB (new Development Bank) and the AIIB (Asian Infrastructure Investment Bank). Not all achieved equal success however, with Asia leading the pack while some others —especially in Latin America—would fall behind. By decade's end, there were looming threats but prospects remained largely favorable for emerging markets. The present decade had only begun when the second crisis, the COVID pandemic, struck, a crisis of historic proportions and of such devastating consequence, as seen in the subsequent Chapter.

Juxtaposing emerging economies with developed markets may not always do justice to the progress made by these economies individually, as the case of the E20 illustrates. To better gauge how far E20 economies have come both in relation to one another and to themselves, we include in this Report our first edition of the E20 ranking. It measures economic, technological and social progress based on average annual GDP growth; mobile penetration; and the human development index (HDI) published by UNDP. Beyond the realm of economics, a number of events (in the field of science, technology, sports, culture, international relations) also illustrate the deep transformation brought about by emerging markets. Such milestones are included in an Appendix to the Chapter.

Chapter 4 — Emerging Markets post-COVID: A Crisis like No Other

COVID triggered the worst global crisis since the Great Depression. This chapter examines its consequences not just for growth and poverty, trade and investment, debt and financial markets, but also for the roles of the state and globalization themselves.

While emerging economies on the whole proved less affected than initially expected, they were dealt a severe blow. The crisis is threatening the progress they achieved to date, imperiling the fight against poverty and reversing the decline in poverty levels for the first time in 20 years. Growth rates would free-fall in many countries as would jobs. Global trade and investment likewise suffered. The crisis would only exacerbate trends already underway, compounding the debt servicing difficulties of many emerging and developing countries while globalization, long since under attack, faced further setbacks. Still, with massive interventions to cushion the shock of the crisis in many countries, including emerging economies, governments have come back to the fore.

Admittedly not all emerging economies were equally hit. Asia, in particular, fared better than the other emerging regions. China stood out, with a projected growth rate of 2%, the only major economy expected to enjoy positive growth in 2020. The crisis is likely to reinforce the divide in the making for quite some time, among emerging markets, in particular between Latin America and Asia. At the global level, the United States and China, the two largest economies, are poised to accelerate decoupling efforts, as an increasingly fragmented world pulls further apart.

SPECIAL CONTRIBUTORS

Chapter 5 — New Technologies as a Lever for Recovery in Emerging Markets

The 21st century witnessed a rapid increase in the uptake of digital technologies by economies, societies and businesses across the globe. However, not all social groups benefitted equally, particularly in emerging markets. Indeed, while the diffusion and adoption of mobile broadband swung upwards across the board, sophisticated mobile Internet applications still prove inaccessible to many. The current COVID crisis only highlights the crucial role of these technologies.

As shown in this chapter, digital transformation can stimulate business innovation and new consumption models, transform production systems and value chains, re-organize economic sectors, enhance competiveness and contribute to pulling countries out of the crisis. With the recession triggered by the pandemic exacerbating poverty and vulnerabilities, digital tools can facilitate access to key services, such as health and education. They can also contribute to improving public governance. Through three case studies - on digital production transformation in Africa, smart cities in Asia, and investment in new technologies in Latin America, this chapter explores the role the private sector can play in accelerating digital transformation and unlocking economic development across emerging markets.

Chapter 6 — Financial Inclusion: Going Digital to Meet Customer Needs

Over the last twenty years, the emergence of new mobile technologies and a new level of communications connectivity changed the financial services landscape. The revolution in connectivity spurred by the widespread rollout and adoption of internet and mobile technologies makes new business models of delivering affordable and sustainable financial services to the masses possible. As a result, financial access and inclusion have risen dramatically. Yet, globally, 1.7 billion people are still unbanked, the majority of whom are concentrated in Asia and Sub Saharan Africa, and hundreds of millions of formal and informal small businesses have unmet financing needs. For many financial service providers, the cost of serving low-income customers and small businesses is high and it is often difficult to reach remote and rural customers efficiently. At the same time, many potential customers are without credit history or collateral, keeping financial services out of their reach.

A new landscape for financial services, however, is emerging. New players are transforming the way individuals in emerging markets access and use financial services. These innovative solutions will allow more users to access financial services quicker and cheaper than ever before. This chapter discusses some of the major trends in financial inclusion through the IFC experience and highlights the need for further responsible investment and innovation in this space.

Chapter 7 — Global Value Chain Transformation in the 2020s and Implications for Emerging Economies

The global crisis caused by COVID-19 and the subsequent transformation of global value chains in the decade ahead will reshape the global trade and investment landscape, particularly that of the emerging markets. They will also drastically alter the modes of operation of international production by multinational enterprise (MNEs), including by those from the E20. A push for greater economic resilience on top of the technology revolution, growing nationalism and sustainability imperative will drive such a global transformation, and exerts far-reaching impact on the emerging markets. All this will pose significant challenges and opportunities for firms and states of the emerging economies, calling for a new generation of investment-development strategies.

Chapter 8 — Mutual Dependence and Power Imbalance: Trade Frictions and Balancing Processes between China and the United States

Based on the power-dependence theory, this chapter analyzes mutual dependence and power imbalance between China and the United States. Using the latest data from 2018 TiVA database, an empirical analysis for 35 subsectors of China and the U.S. concludes the following: a) the bilateral trade gains of both the US and China increase along with their mutual dependence and drop along with their power imbalance which are measured by the bilateral trade. b) participation in global value chain may weaken the negative correlation between power imbalance and bilateral trade gains.

As the findings suggests, the balancing processes contribute to reductions in trade frictions. Between two highly interdependent countries with severe power imbalance, the party with more dependence should “withdraw” some of its dependence and its counterpart should intentionally “give status” to the deficit party. The moderating effect suggests that when two highly

interdependent countries confront the risk of diminishing trade gains due to power imbalance, the country with deep participation in global value chain namely "extension" balancing process will lower the risk.

Ultimately, in the event a country faces fewer trade gains caused by its major trading partner, it should not adopt a protectionism or anti-globalization strategy. On the contrary, it ought to integrate more deeply into the global value chain, which is characterized by widespread trade relations with other countries all over the world.

Chapter 9 — What Unicorns Say About Emerging Markets and the Respective Entrepreneurial Ecosystems: Three Cases from Latin America

Latin America is currently home to an increasing number of unicorns bringing dynamism to the regional entrepreneurial scene. In emerging economies such as Brazil, Argentina and Colombia, this small group of high-tech high-growth entrepreneurial ventures (valued at over $1 billion dollars) mostly concentrate in relatively lower-tech domains such as e-commerce; direct-to-consumer services; supply chain, logistics and delivery. This is in contrast with developed economies, where unicorns dominate innovation-intensive domains, requiring fundamental science breakthroughs such as cybersecurity, artificial intelligence, and analytics. This chapter suggests that Unicorns should be seen as an indicator of the maturity of local entrepreneurial ecosystems, whereby the US and China prove most advanced.

Chapter 10 — Talent Competitiveness in Latin America: Challenges and Opportunities for MNCs

The chapter analyses the competitiveness indicators of health, education, and labor market efficiency across the Latin American region to identify talent management challenges and opportunities for multinational corporations. Given that the area reports low levels of competitiveness in these indicators, it concludes that the challenge for multinational companies is to re-contextualize their global talent management policies and practices in terms of country indicators of performance. They should also step in to compensate for such talent management challenges and develop new organizational capabilities that enable them to attract, grow, and retain talent across their Latin American subsidiaries.

Chapter 11 — The Rise of Indian Corporates

This chapter documents the growth of India's economy as well as its companies in a global context over the past decade and discusses the path for growth in the coming years. India has become the fifth-largest economy in the world, thanks to the rapid growth in the services sector over the past two decades with the advent of the Information Technology (IT) revolution. Today, the sector commands a lion's share of India's economy, contributing 50% of gross domestic product (GDP) on the back of the IT, telecommunication, and banking infrastructure. The telecommunication industry has invested enormously in capacity building and has now started to monetize their infrastructure in place, attracting internet majors such as Facebook to invest in expansions. Indeed, the bulk of India's foreign direct investment (FDI) inflows and exports are tied to its burgeoning services sector.

The services sector is followed by the manufacturing sector with a 25% contribution to the GDP. The government has instituted a slew of policy measures aimed at attracting global manufacturers to "Make in India." Automotive and electronic manufacturing industries have benefitted most from these policy initiatives and have witnessed rapid growth over the past decade. While these industries still lag major players such as China and South Korea, India has a strong homegrown pharmaceutical industry and is the world's largest manufacturer of generic drugs.

The agriculture sector has historically been important to India's population and even today employs almost half of its population. However, the sector contributes only 16% of GDP, leading to low aggregate productivity of the labor force. The government has started emphasizing the use of technology in agriculture with the aim of achieving increased productivity and reduced labor requirement.

OPINION PIECES, EMI Faculty Advisory Board and EMI's Advisory Council

- Welfare and Hospital Systems in the Emerging Markets From a Historian's Point of View by **Paloma Fernández**, Universidad de Barcelona, Spain
- Emerging Markets and Global Governance Reforms, by **Peter Gammeltoft**. Copenhagen Business School, Copenhagen, Denmark.
- Post-pandemic Trends and Opportunities for Global Industrial Chains by **Xiaojun Huang**, Bank of China, USA, and **Ruihao Xie**, Bank of China, USA

- EU-China Research and Innovation Relations by **Amadeo Jensana**, Casa Asia. Barcelona. Spain
- Reflections on Reverse Innovation by **Ravi Ramamurti**, Center for Emerging Markets. D'Amore-McKim School of Business. Northeastern University, Boston, USA
- Development and challenges: China in the 2010s by **Zhaohui Xuan**, CASTED, Ministry of Technology and Innovation, Beijing, China

Book review by Mike Peng, University of Texas at Dallas, USA

The era of Chinese multinationals, - competing for global dominance, by L. Casanova and A. Miroux, Elsevier Academic Press, 2020

PART I
EMERGING MARKETS INSTITUTE

Authors:

Lourdes Casanova - Gail and Rob Cañizares Director, Cornell University (Ithaca, United States)

Anne Miroux - Faculty Fellow, Cornell University (Ithaca, United States)

Chapter 1
The Decade of the Emerging Multinationals

Lourdes Casanova - Gail and Rob Cañizares Director, Cornell University (Ithaca, United States)
Anne Miroux - Faculty Fellow, Cornell University (Ithaca, United States)

Executive Summary

The 2010s was a time-stretch of sweeping, record-shattering consolidations amongst emerging market multinationals, which made consistent gains in the value chain through increasingly global brands in a diverse range of sectors including banking, technology, electrical vehicles, white goods, mobile telecoms, and online retail. Korean companies, such as Samsung and LG, and Chinese firms, including Huawei, Xiaomi, Haier, Lenovo, ICBC, Alibaba, and Tencent became household names all over the world. This chapter illustrates how Emerging Multinationals (eMNCs), largely led by Chinese and Koreans asserted their power, helming global league tables in multiple dimensions including revenues, market capitalization, and market shares. It also highlights the shift toward Asia, portending realignments in the business world with implications for what is taught and researched in business schools and beyond.

1.1. The years the tables turned

The previous five editions of this report have explored eMNCs based on the premise that large, profitable, and innovative firms should and do contribute to the development of their respective home countries. In this previous decade, eMNCs would grow alongside their home economies with increasingly divergent scope and scale. The Emerging Market Reports (Casanova and Miroux 2016, 2017, 2018, and 2019b) would review that growth, its internationalization and strategy, not as stand-alone, but as a set of micro and macro relations, all for the purpose of study and analysis.

This takes us forward, away from the paradigm management schools and business scholars set their sights on since their birth mid-century, when American, European and, later, Japanese firms dominated the business world, showcasing best management practices, international pursuits, and innovation capabilities. MBAs were churned out to model exemplary businesses, from the once legendary efficiency of Ford assembly lines to the FANG (Facebook, Amazon, Netflix, and Google) innovations of today.

Hence, the reports—the net result of collaborations among EMI's research team, colleagues from the Emerging Multinationals Research Network, and the EMI's faculty advisory board at Cornell—would open a window into the new eMNCs behind the current state of affairs, the realignments underway. Databases like Standard & Poor's Capital IQ, Financial Times FDI Markets, Bloomberg, and the 30-year-old Fortune Global 500 ranking house the raw materials we draw upon for our studies here and for new avenues of exploration still to come.

The Fortune 500 ranking takes the pulse of the business heavyweights (more of a movie than a picture), with shots of their comparative standing now and over time. The data depict a dense overview of the affairs across industries, geographies, ownership,

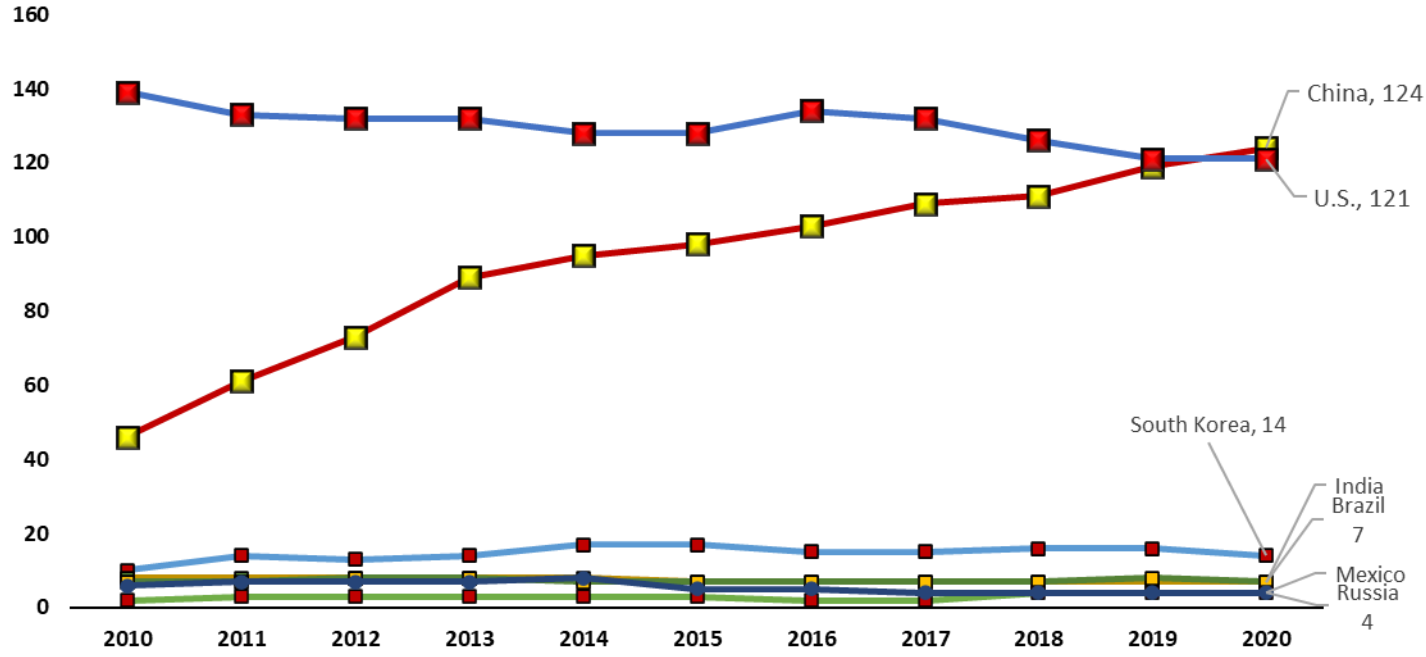
profits, employees, assets, and margins. It is a matter of pride for companies to be included in this prestigious ranking, a monument to their coming of age as they move into the most coveted leagues of industry.

As the data in the EMI reports exemplified, the leading firms of the new millennium now come from new corners on the map. Eight out of the twenty largest economies qualify as emerging markets whose companies are among the world's most prized. As a sign of the times, the Fortune Global 500 indicates that US companies no longer stand at the top, given Chinese corporate giants now tout higher numbers than the long unrivaled incumbent.

The clout of Chinese companies is still relatively new. They broke into the global scene with the 2008 Global Financial crisis. The speed of their last decade progression would prove as mesmerizing as their internationalization (see Chapter 2), tripling their presence in the past decade alone (Figure 1.1), matching what Japan, France, Germany, and the U.K. account for combined.

Now as then, the growth of companies largely parallels that of their domestic markets, the expansions of government support (see the study of the government's role in Casanova and Miroux 2019a and Casanova and Miroux 2017), and the measure of their internationalization (see Chapter 2). Only because of the enormity of its home market, China still leaves a modest international footprint relative to the revenues and profits its firms generate domestically.

Figure 1.1. Number of Emerging Market Multinationals on Fortune Global 500 (2010-2020)



Source: EMI Research team based on Fortune Global 500 data, https://fortune.com/global500, accessed August 2020.

As is often mentioned in the literature, big is beautiful. Large companies are more efficient, productive, and innovative. And it works both ways: size is the result of time-tested advantages. Firms pay better, train their employees and, when more scrutinized, fare better. Everywhere, Micro, Small and Medium Size companies (MSMEs) are the lifeblood of economies but their lives, particularly in emerging markets, are precarious, especially in the face of crisis. Hence, in the reports over the last five years, our focal points gravitated toward companies in leadership positions domestically, regionally, and globally.

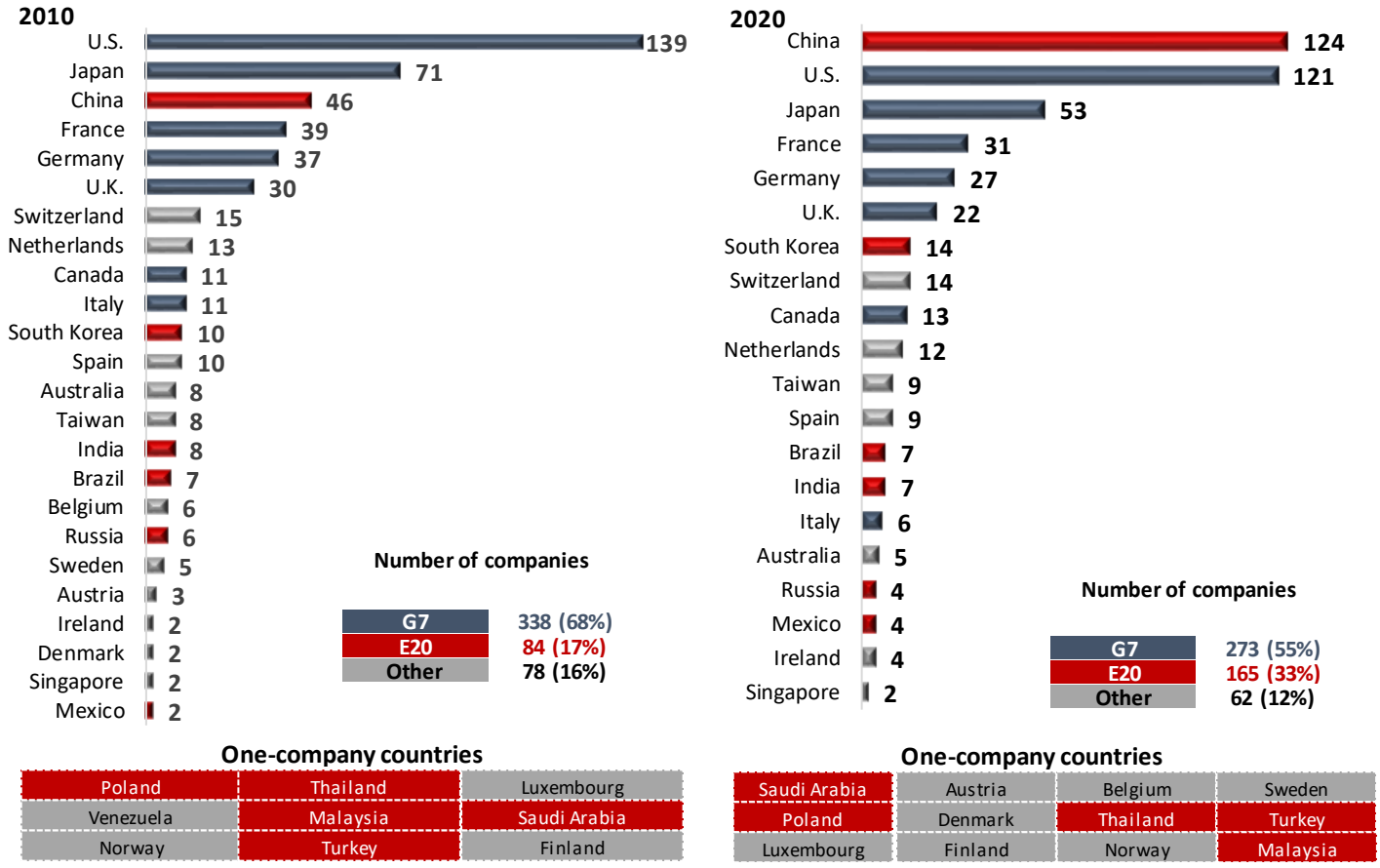
The ranking mirrors countries by nominal Gross Domestic Product (GDP) and GDP/capita (e.g., the six largest E20 countries, China, India, Brazil, Russia, South Korea, and Mexico; see Chapter 3). Here, too, China and South Korea stand as outliers, with more firms featured than their corresponding economic size.

As for the representation in the last decade of G7 countries, they dwindled (55% versus 68%), while E20 firms doubled, from 17% to 33%, as seen in Figure 1.2. For the United States and Japan, the numbers would fall in two decades by a third and by half, respectively. Still, the United States would continue to dominate the Fortune Global 500 ranking, now alongside China, who (taken

together) account for almost half of the ranking, a reflection of the divide between the two dominant superpowers and the rest, as well as between China and the remaining E20.

As shown in the previous four EMI reports (Casanova and Miroux 2016, 2017, 2018 and 2019), Chinese firms sacrifice profits for long-term growth, with margins at 4.5% (only half of those generated by the United States at 8.9%). An explanation for this stark difference is that 66% of Chinese firms in Fortune's 2020 ranking are State-Owned Enterprises (SOE) or mixed ownership public-SOEs (compared to 1% of US firms). In terms of publicly traded firms, we observe 89% on the American side versus 23% originating from China, a notable feat given the fact that their average founding year date back to as early as 1981, among the youngest featured in the ranking (Casanova and Miroux 2019).

Figure 1.2. Countries represented in the Fortune Global 500: 2010 versus 2020



Source: EMI research team based on Fortune Global 500 data, https://fortune.com/global500, accessed August 2020.

In terms of industries (Table 1.1), eMNCs are now a majority of National Oil Companies (NOCs) like the Mexican Pemex and the Brazilian Petrobras or PTT PCL from Thailand (see box in Appendix). Fully state-owned or mixed ownership firms play an important role in innovation, job creation, and incubation of entrepreneurial eco-systems. At the same time, they would be used (and criticized) for funding governments with weak tax collection systems, crippling the means by which firms could ratchet necessary investments in R&D to ensure sustainable and profitable growth.

Banks are also featured among noteworthy eMNCs, such as one of the oldest SOE/public banks in the world, Banco do Brasil (see box in Appendix) and the publicly traded Banco Bradesco (see box in Appendix), both part of the vibrant financial Brazilian sector known for its profitability and technological innovation. Together, they add up to a majority of Brazil's representation in Fortune.

Representation of E20 countries per industry has now outgrown those of G7 countries in *Mining, Crude Oil Production*; *Trading*; *Metals* and *Engineering and Construction* (Table 1.1), 78% of whom originate from E20 countries, with the ten largest firms enjoying the highest growth rates.

Table 1.1. Number of E20/G7 firms in top industries in 2020 Fortune Global 500

	Industry	Companies	Average of Revenue ($ Million)	E20	G7	Other
1	Banks: Commercial and Savings	50	62,795	34%	52%	14%
2	Motor Vehicles and Parts	34	81,869	32%	65%	3%
3	Petroleum Refining	29	120,852	45%	38%	17%
4	Insurance: Life, Health (stock)	26	72,847	23%	65%	12%
5	Mining, Crude-Oil Production	23	63,106	78%	13%	9%
6	Trading	19	61,770	63%	32%	5%
7	Metals	18	49,117	78%	17%	6%
8	Insurance: Property and Casualty (Stock)	17	59,414	6%	71%	24%
9	Telecommunications	16	78,360	25%	69%	6%
10	Food and Drug Stores	16	63,578	0%	75%	25%
11	Electronics, Electrical Equip.	15	64,270	40%	47%	13%
12	Utilities	15	68,365	33%	53%	13%
13	Engineering, Construction	13	75,631	69%	23%	8%
14	Pharmaceuticals	13	52,823	15%	69%	15%
15	Aerospace and Defense	13	51,105	46%	46%	8%
16	Insurance: Life, Health (Mutual)	11	37,745	27%	64%	9%
17	Diversified Financials	10	67,187	40%	50%	10%
18	Specialty Retailers	10	47,456	30%	60%	10%
19	Energy	10	50,696	60%	40%	0%
20	Computers, Office Equipment	9	68,594	11%	56%	33%
21	Food Production	7	44,055	14%	57%	29%

Source: EMI research team based on Fortune Global 500 data, https://fortune.com/global500, accessed August 2020.

In the last ten years and with the exception of Motor Vehicles, and Food and Drugs Stores, the presence of eMNCs (mainly Chinese companies) has grown and risen through the ranks (Figure 1.3 and Figure 1.18 for the extended version). The leadership is clear in banking (ICBC, China Construction Bank, Agricultural Bank of China, and Bank of China), petroleum refining (Sinopec, China National Petroleum), Insurance (Ping An, see box in Appendix), Metals (Amer International Group, China Minmetals and China Baowu Steel Group), Transportation (China Post Group) and Energy (Sinopec, State Grid and China National Petroleum).

Figure 1.3. Top five[1] companies across different industries in the Fortune Global 500 in 2010 and 2020.

Banks: Commercial and Savings

2010 Company	2020 Company
12. ING Group	24. Industrial & Commercial Bank of China
15. Bank of America Corporation	30. China Construction Bank
18. BNP Paribas	35. Agricultural Bank of China
25. J.P. Morgan Chase & Co.	38. JPMorgan Chase
33. Citigroup, Inc.	43. Bank of China

Motor Vehicles and Parts

2010 Company	2020 Company
5. Toyota Motor Corporation	7. Volkswagen
16. Volkswagen AG	10. Toyota Motor
23. Ford Motor Company	20. Daimler
30. Daimler AG	31. Ford Motor
38. General Motors Corporation	39. Honda Motor

Petroleum Refining

2010 Company	2020 Company
2. Royal Dutch Shell plc	2. Sinopec Group
3. Exxon Mobil Corporation	4. China National Petroleum
4. BP p.l.c.	5. Royal Dutch Shell
7. China Petrochemical Corp.	8. BP
10. China National Petroleum Corporation	11. Exxon Mobil

Insurance: Life, Health (stock)

2010 Company	2020 Company
6. Japan Post Holdings Co., Ltd.	21. Ping An Insurance
9. AXA	34. AXA
19. Assicurazioni Generali SpA	45. China Life Insurance
53. Aviva,plc	46. Allianz
72. Prudential plc	60. Japan Post Holdings

[1] This figure is available for the top ten of each industry in the Appendix.

Mining, Crude-Oil Production			
2010		2020	
Company		Company	
64. Petróleos Mexicanos		6. Saudi Aramco	
139. BHP Billiton Limited		17. Glencore	
173. Rio Tinto Group		64. China National Offshore Oil	
252. China National Offshore Oil Corp.		108. China Energy Investment	
356. Shenhua Group Corporation Limited of		133. Pemex	

Trading			
2010		2020	
Company		Company	
146. Mitsubishi Corporation		27. Trafigura Group	
164. Mitsui & Co., Ltd.		42. Mitsubishi	
195. Itochu Corporation		72. Itochu	
203. Sinochem Group		109. Sinochem Group	
206. Marubeni Corporation		136. COFCO	

Metals			
2010		2020	
Company		Company	
99. ArcelorMittal		91. Amer International Group	
123. ThyssenKrupp AG		92. China Minmetals	
191. Nippon Steel Corporation		111. China Baowu Steel Group	
253. JFE Holdings, Inc.		146. ArcelorMittal	
272. POSCO		194. POSCO	

Insurance: Property and Casualty (Stock)			
2010		2020	
Company		Company	
20. Allianz AG		14. Berkshire Hathaway	
28. Berkshire Hathaway Inc.		112. People's Insurance Co. of China	
41. American International Group,Inc.		135. Munich Re Group	
73. Munich Re Group		139. Zurich Insurance Group	
83. Zurich Financial Services		226. Tokio Marine Holdings	

Telecommunications			
2010		2020	
Company		Company	
21. AT&T Inc.		22. AT&T	
31. Nippon Telegraph & Telephone Corporation		44. Verizon Communications	
35. Verizon Communications Inc.		62. Nippon Telegraph and Telephone	
59. Deutsche Telekom AG		63. Comcast	
68. Telefónica		65. China Mobile Communications	

Food and Drug Stores			
2010		2020	
Company		Company	
22. Carrefour SA		41. Walgreens Boots Alliance	
45. CVS Caremark Corporation		51. Kroger	
57. Metro AG		98. Carrefour	
58. Tesco PLC		103. Tesco	
70. The Kroger Company		115. AEON	

Source: EMI research team based on Fortune Global 500 data, https://fortune.com/global500, accessed August 2020.

In the past EMI reports, we have compared revenues, profits, and ownership of eMNCs concerning U.S. and Chinese firms. In the next section, we study what constitutes a source of financing for companies: stock markets. We will then move to a comparison of prices as a business strategy and brands.

1.2. Stock Markets in Emerging Countries

Stock Markets are a considerable source of raising capital for firms. The role of the American New York Stock Exchange and the Nasdaq with a combined market value of USD35 trillion for listed companies (see Table 1.2), almost equal to the value of the next 18 stock markets combined, is central for the U.S. economy. As shown in Table 1.2, over the past ten years, the most valuable stock market in the world is the New York Stock Exchange (NYSE), which approximately doubled from 2009 to H1 2020. A few other international exchanges have expanded even more pronouncedly but have yet to challenge the supremacy of the U.S. stock exchanges. Among the Top 20, the Saudi Stock Exchange is of note, ballooning six-fold relative to its value in 2009, the 9th most valuable as of June 2020.

But today, the highest valued stock markets from emerging markets are Chinese. SSE (Shanghai Stock Exchange) and HKEX (Hong Kong Exchange) enjoyed a growth rate comparable to NYSE's, with the SZSE (Shenzhen Stock Exchange) tripling in value. Among the top 20, besides the American Nasdaq, only the Chinese exchanges saw their valuations increase in H1 2020 in the wake of the

COVID-19 impact. In the last decade, most stock markets from north and south saw an increase in their market values except for the Brazilian stock exchange, which lost its position among the Top 20 by 2020. The Iranian Stock Exchange's growth in 2020 is a surprise, as it was ranked 17th at the apex of COVID-19's most damaging stranglehold over the global economy.

Table 1.2. Value of Top 20 stock markets 2009-2019 and in June 2020.

	December 2009			December 2019			June 2020		
	Stock Market	Country	Value ($bn)	Stock Market	Country	Value ($bn)	Stock Market	Country	Value ($bn)
1	NYSE	U.S.	11,838	NYSE	U.S.	24,480	NYSE	U.S.	21,036
2	LSE Group	U.K.	3,454	Nasdaq - US	U.S.	13,002	Nasdaq - US	U.S.	14,646
3	Japan Exchange Group Tokyo	Japan	3,306	Japan Exchange Group	Japan	6,191	Japan Exchange Group	Japan	5,664
4	Nasdaq - US	U.S.	3,239	Shanghai Stock Exchange	China	5,106	Shanghai Stock Exchange	China	5,265
5	Euronext	Netherlands	2,869	Hong Kong Exchanges and Clearing	China	4,899	Hong Kong Exchanges and Clearing	China	4,890
6	Shanghai Stock Exchange	China	2,705	Euronext	Netherlands	4,702	Euronext	Netherlands	4,286
7	Hong Kong Exchanges and Clearing	China	2,305	LSE Group	U.K.	4,183	Shenzhen Stock Exchange	China	3,917
8	Euronext Paris	France	1,946	Shenzhen Stock Exchange	China	3,410	LSE Group	U.K.	3,230
9	TMX Group	Canada	1,677	TMX Group	Canada	2,409	Saudi Stock Exchange (Tadawul)	Saudi Arabia	2,196
10	BME Spanish Exchanges	Spain	1,435	Saudi Stock Exchange (Tadawul)	Saudi Arabia	2,407	TMX Group	Canada	2,098
11	B3 - Brasil Bolsa Balcão	Brazil	1,337	BSE India Limited	India	2,180	Deutsche Boerse AG	Germany	1,934
12	BSE India Limited	India	1,307	National Stock Exchange of India	India	2,163	BSE India Limited	India	1,842
13	Deutsche Boerse AG	Germany	1,292	Deutsche Boerse AG	Germany	2,098	National Stock Exchange of India	India	1,827
14	ASX Australian Securities Exchange	Australia	1,262	SIX Swiss Exchange	Switzerland	1,834	SIX Swiss Exchange	Switzerland	1,761
15	National Stock Exchange of India	India	1,225	Nasdaq Nordic and Baltics	Sweden	1,613	Nasdaq Nordic and Baltics	Sweden	1,561
16	SIX Swiss Exchange	Switzerland	1,065	ASX Australian Securities Exchange	Australia	1,488	Korea Exchange	South Korea	1,409
17	Shenzhen Stock Exchange	China	868	Korea Exchange	South Korea	1,485	Tehran Stock Exchange	Iran	1,352
18	Korea Exchange	South Korea	835	Taiwan Stock Exchange	Taiwan	1,217	ASX Australian Securities Exchange	Australia	1,324
19	Nasdaq Nordic and Baltics	Sweden	817	B3 - Brasil Bolsa Balcão	Brazil	1,187	Taiwan Stock Exchange	Taiwan	1,202
20	Johannesburg Stock Exchange	South Africa	799	Johannesburg Stock Exchange	South Africa	1,056	Johannesburg Stock Exchange	South Africa	826

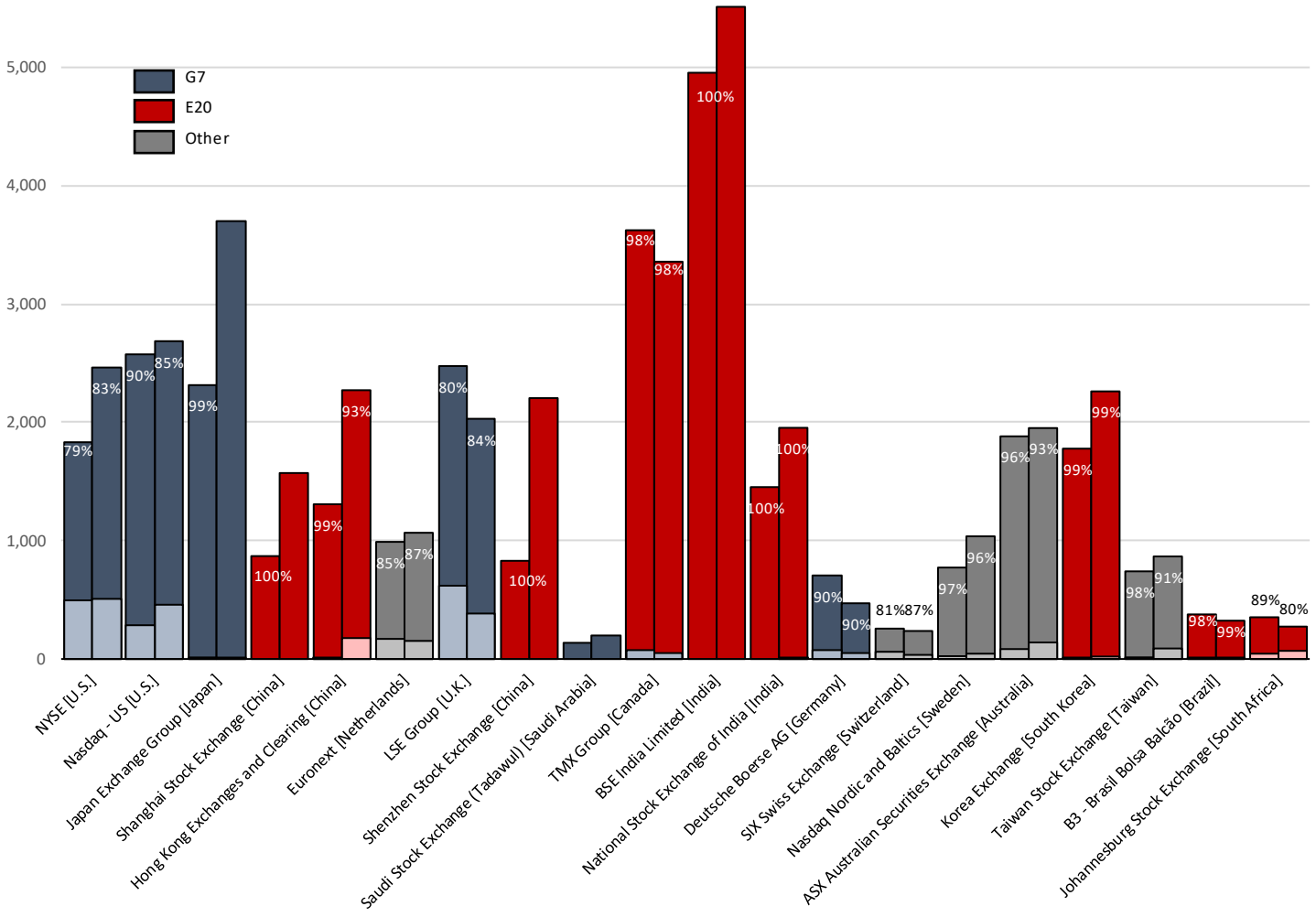
Source: EMI Research Team based on World Federal Exchanges, https://www.world-exchanges.org/, accessed September 2020.

But which stock markets have proven attractive for international companies? Figure 1.4 shows the distribution of the companies listed in the top stock exchanges at the end of the last decade, with local companies dominating emerging stock markets. India's emerging stock market, BSE, boasts one of the highest numbers of companies listed. BSE swelled from about 5,000 to more than 5,500 in this period. Its composition, however, is entirely domestic.

Emerging stock markets appear to list fewer foreign companies than their developed countries counterparts. The exception is JSE from South Africa, which increased its share of foreign firms from 11% to 20%. Still, JSE's increased foreign share took place amid a decrease in the number of listed companies in its markets. B3 from Brazil is the only other emerging stock market that lost several companies previously listed. HKSX from China, however, incorporated more foreign companies, shooting up from 1% in 2009 to 7% in 2019. Accordingly, HKSX currently has more companies listed than NYSE.

Even as valuations soared, Tadawul from Saudi Arabia only benefited from domestic companies and has yet to break the thousand number milestone. It is the only Top 10 market in this category to have fewer than a thousand companies. Nevertheless, the low level of internationalization is not exclusive to E20 stock markets. The G7 stock markets, JPX and TMX, make up the same share of foreign companies listed in Figure 1.4 as E20 stock markets. Even other developed countries like Australia and Sweden have low foreign share listings. By far, the British LSE and the American NYSE and Nasdaq were and continue to be the ones with the highest shares of international companies.

Figure 1.4. Number of companies listed on the top 20 stock markets by market value in December 2019, and its share of domestic (darker) and foreign (lighter) companies listed, comparison between 2009 (left bars) and 2019 (right bars).

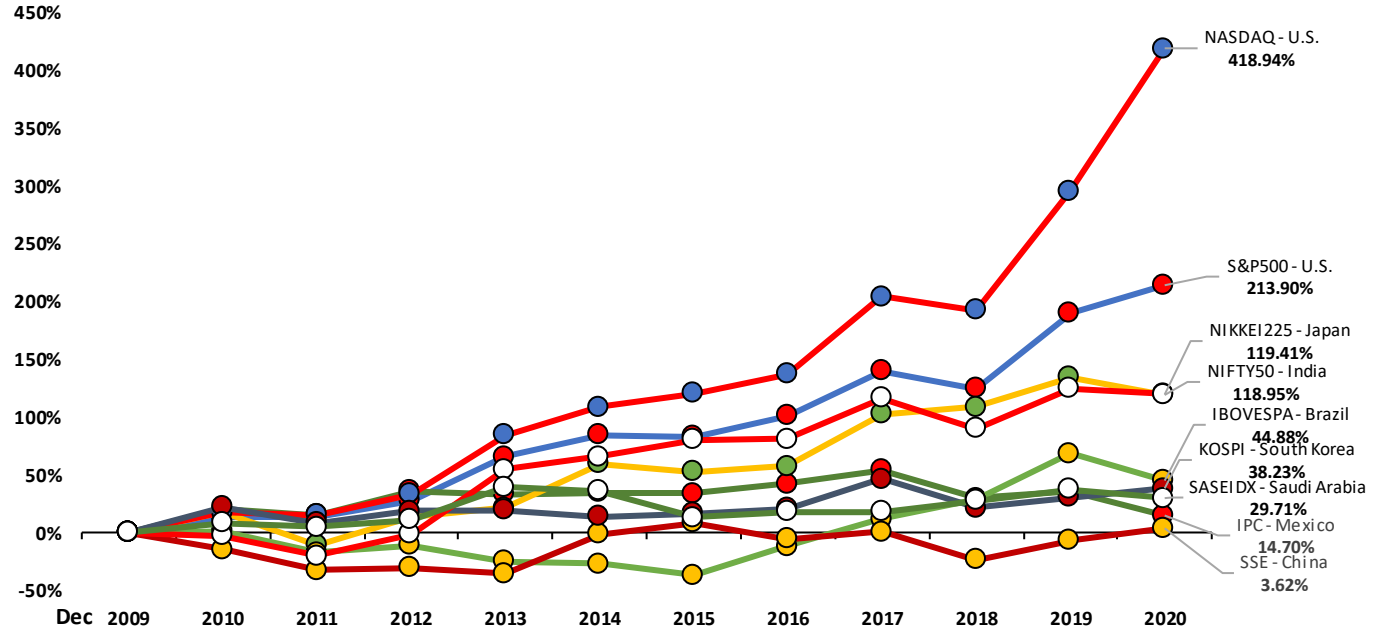


Source: EMI Research Team based on World Federal Exchanges, https://www.world-exchanges.org/, accessed September 2020.

The increase in market capitalization of several E20 stock markets does not appear to correlate with the returns of the stock indices of these countries. While the market cap of some of the stock exchanges increased the stock market return was, in some cases, negative. Figure 1.5 and Table 1.3 show that SSE Composite from China closed the last decade with a small negative return, then recovered in August 2020, despite the impact of COVID 19, while Shanghai Stock Exchange jumped from 6th to 4th in the World in that period, almost doubling its value.

It is notable that SASEIDX, the index related to Saudi Arabia's Tadawul, gained 30% since December 2009, less than other emerging markets indexes, while Tadawul became one of the ten biggest stock markets on the global stage. Brazilian IBOVESPA recovered its value since political fallout from the last decade, a time of accumulated market losses, but the Brazilian stock exchange is one of the few ones which has lost value in the decade. Since 2009, NIFTY50's value from India rose to a similar level to NIKKEI225's from Japan, the most valuable stock market outside U.S.

Figure 1.5. Growth of China, India, Brazil, Korea, Saudi Arabia, Mexico and China compared to the U.S. and Japan. 2009-August 2020



Source: EMI Research team based on Bloomberg Terminal (https://www.bloomberg.com), accessed September 2020.

Table 1.3 shows the change in market capitalization of the world's top 20 companies over the last decade. In December 2009, PetroChina, then the most valued company in the world, led the list but has fallen behind more recently. After launching the largest IPO in history in late 2019, Saudi Aramco took the helm. However, Apple, which broke the first trillion-dollar milestone in August 2018, crossed the two trillion-dollar mark in August 2020, successfully recovering from COVID-19's negative impacts and ousting Saudi Aramco from the top spot.

Among the most valuable companies in the world, we find five eMNCs in 2009 and the same number in 2019. However, the number of Petroleum Refining companies declined, replaced by Computer and Internet companies primed to invest in innovation and branding like Alibaba, Tencent, and Samsung. G7 countries would likewise increase their share. Even in 2020, as COVID-19 impact wreaked havoc, the most valuable companies would show signs of recovery already by August, at which time Samsung Electronics and ICBC broke into the Top 20, along with Bank of America and Exxon Mobil.

In 2020, in spite of COVID-19, some industries fared well. For instance, after its IPO in 2001, Kweichow Moutai, a Chinese beverage company, grew in valuation by more than 50% through September 2020.

Table 1.3. Top 20 companies by market capitalization, 2010 - 2020, and August 2020.

	December 2009					December 2019					August 2020				
	Company	Country	Industry	Market Value ($bn)	Fortune Global 2010	Company	Country	Industry	Market Value ($bn)	Fortune Global 2019	Company	Country	Industry	Market Value ($bn)	Fortune Global 2020
1	PetroChina	China	Petroleum Refining	353.1	-	Saudi Aramco	Saudi Arabia	Mining, Crude-Oil Production	1,879.3	6	Apple	U.S.	Computers, Office Equipment	2,206.9	12
2	Exxon Mobil	U.S.	Petroleum Refining	323.7	3	Apple	U.S.	Computers, Office Equipment	1,304.8	11	Saudi Aramco	Saudi Arabia	Mining, Crude-Oil Production	1,894.8	6
3	Microsoft	U.S.	Computer Software	270.6	115	Microsoft	U.S.	Computer Software	1,203.1	60	Amazon.com	U.S.	Internet Services and Retailing	1,728.6	9
4	Industrial & Commercial Bank of China	China	Banks: Commercial and Savings	269	87	Alphabet	U.S.	Internet Services and Retailing	922.9	37	Microsoft	U.S.	Computer Software	1,706.7	47
5	Walmart	U.S.	General Merchandisers	203.7	1	Amazon.com	U.S.	Internet Services and Retailing	916.2	13	Alphabet	U.S.	Internet Services and Retailing	1,109.9	29
6	China Construction Bank	China	Banks: Commercial and Savings	201.4	116	Facebook	U.S.	Internet Services and Retailing	585.3	184	Facebook	U.S.	Internet Services and Retailing	835.3	144
7	BHP Billiton	Australia	Mining, Crude-Oil Production	201.2	139	Alibaba Group Holding	China	Internet Services and Retailing	569.0	182	Alibaba Group Holding	China	Internet Services and Retailing	776.6	132
8	HSBC Holdings	U.K.	Banks: Commercial and Savings	199.3	39	Berkshire Hathaway	U.S.	Insurance: Property and Casualty (Stock)	553.7	12	Tencent Holdings	China	Internet Services and Retailing	651.1	197
9	Petrobras	Brazil	Petroleum Refining	199.1	54	Tencent Holdings	China	Internet Services and Retailing	457.9	237	Berkshire Hathaway	U.S.	Insurance: Property and Casualty (Stock)	521.1	14
10	Apple	U.S.	Computers, Office Equipment	189.8	197	JPMorgan Chase & Co.	U.S.	Banks: Commercial and Savings	437.2	41	Tesla	U.S.	Motor Vehicles & Parts	464.3	-
11	China Mobile Communications	China	Telecommunications	188.5	77	Visa	U.S.	Banks: Commercial and Savings	404.9	-	Visa	U.S.	Financial Data Services	451.1	-
12	Royal Dutch Shell	Netherlands	Petroleum Refining	186.6	2	Johnson & Johnson	U.S.	Pharmaceuticals	383.9	109	Johnson & Johnson	U.S.	Pharmaceuticals	403.9	104
13	BP	U.K.	Petroleum Refining	181.8	4	Walmart	U.S.	General Merchandisers	337.2	1	Walmart	U.S.	General Merchandisers	393.2	1
14	Johnson & Johnson	U.S.	Pharmaceuticals	177.7	108	Samsung Electronics	South Korea	Electronics, Electrical Equip.	320.8	15	Taiwan Semiconductor Manufacturing	Taiwan	Semiconductors	376.2	362
15	Nestlé	Switzerland	Food Consumer Products	177.3	44	Bank of America Corp.	U.S.	Banks: Commercial and Savings	316.8	58	Mastercard	U.S.	Financial Data Services	358.6	-
16	Procter & Gamble	U.S.	Household and Personal Products	177.1	66	Nestlé	Switzerland	Food Consumer Products	312.4	76	Procter & Gamble	U.S.	Household and Personal Products	344.4	156
17	International Business Machines	U.S.	Information Technology Services	172	48	Procter & Gamble	U.S.	Household and Personal Products	311.5	146	Nestlé	Switzerland	Food Consumer Products	335.2	82
18	JPMorgan Chase & Co.	U.S.	Banks: Commercial and Savings	171.1	25	Mastercard	U.S.	Banks: Commercial and Savings	301.2	-	NVIDIA Corporation	U.S.	Semiconductors	330.1	-
19	AT&T	U.S.	Telecommunications	165.4	21	Exxon Mobil	U.S.	Petroleum Refining	295.2	8	Kweichow Moutai	China	Beverages	327.7	-
20	General Electric	U.S.	Diversified Financials	161.1	13	Industrial & Commercial Bank of China	China	Banks: Commercial and Savings	294.5	26	The Home Depot	U.S.	Specialty Retailers	306.8	59

Source: EMI Research team based on Financial Times' Global 500 December 2009, http://media.ft.com/cms/419e021c-fecd-11de-91d7-00144feab49a.pdf, accessed April 2020, S&P Capital IQ (, and Fortune Global 500 data, https://fortune.com/global500, accessed September 2020.

While analyzing E20 public companies during 2020, in Table 1.4, it is noteworthy that e-commerce and mobile payment firms, a vital source of commercial activity during the lockdown periods, would seize the moment. Alibaba and Tencent saw an increas e in their market values by more than 30% in 2020. The value of Meituan Dianping and JD.com more than doubled. Even the Argentine Mercado Libre trumped Petrobras, an unthinkable reality just ten years ago.

Still, COVID-19 and the subsequent collapse of oil and commodity prices (Chapter 4) took a toll on companies in the petroleum refinery and mining industries. Banks could also not recover entirely from the pandemic, with the exception of China Merchants Bank, whose market value by USD600 million to 135.5 billion. Important Chinese banks such as the Industrial Bank or Bank of Communications, as well as the Brazilian Itaú Unibanco and Bradesco or Indian ICICI, no longer feature in the Top 50 in the p ost-COVID era. The impact on banks and petrochemical refining companies is best exemplified by the case of the Brazilian Itaú Unibanco and the Russian Rosneft, among the thirty most valuable at the start of 2020 with market values of above US$ 75 bn. By August 2020, t heir market values plummeted, falling below US$ 50 bn.

Table 1.4. Top 20[2] companies from E20 countries by market capitalization, at the beginning of 2020, and August 2020.

	December 19					August 2020				
	Company	Country	Industry	Market Value ($bn)	Fortune Global 2019	Company	Country	Industry	Market Value ($bn)	Fortune Global 2020
1	Saudi Aramco	Saudi Arabia	Mining, Crude-Oil Production	1,879.3	6	Saudi Aramco	Saudi Arabia	Mining, Crude-Oil Production	1,894.8	6
2	Alibaba	China	Internet Services and Retailing	569.0	182	Alibaba	China	Internet Services and Retailing	776.6	132
3	Tencent Holdings	China	Internet Services and Retailing	457.9	237	Tencent Holdings	China	Internet Services and Retailing	651.1	197
4	Samsung Electronics	South Korea	Electronics, Electrical Equip.	320.8	15	Kweichow Moutai	China	Beverages	327.7	-
5	Industrial & Commercial Bank of China	China	Banks: Commercial and Savings	294.5	26	Samsung Electronics	South Korea	Electronics, Electrical Equip.	304.3	19
6	Ping An Insurance	China	Insurance: Life. Health	234.1	29	Industrial & Commercial Bank of China	China	Banks: Commercial and Savings	243.9	24
7	China Construction Bank	China	Banks: Commercial and Savings	217.7	31	Ping An Insurance	China	Insurance: Life. Health	199.7	21
8	Kweichow Moutai	China	Beverages	213.4	-	Meituan Dianping	China	Internet Services and Retailing	193.9	-
9	Agricultural Bank of China	China	Banks: Commercial and Savings	182.7	36	Reliance Industries	India	Petroleum Refining	179.9	96
10	China Mobile	China	Telecommunications	172.2	56	China Construction Bank	China	Banks: Commercial and Savings	179.0	30
11	Bank of China	China	Banks: Commercial and Savings	147.4	44	Agricultural Bank of China	China	Banks: Commercial and Savings	159.9	35
12	PetroChina	China	Petroleum Refining	146.2	4*	China Life Insurance	China	Insurance: Life, Health (stock)	150.9	45
13	China Merchants Bank	China	Banks: Commercial and Savings	134.9	188	China Mobile	China	Telecommunications	143.1	65
14	AIA Group	Hong Kong	Insurance: Life, Health (stock)	126.5	388	Wuliangye Yibin	China	Beverages	136.0	-
15	Reliance Industries	India	Petroleum Refining	126.1	106	China Merchants Bank	China	Banks: Commercial and Savings	135.5	189
16	China Life Insurance	China	Insurance: Life, Health (stock)	125.0	51	Bank of China	China	Banks: Commercial and Savings	128.4	43
17	Tata Consultancy Services	India	Information Technology Services	114.0	-	AIA Group	China	Insurance: Life, Health (stock)	124.2	250
18	Petrobras	Brazil	Petroleum Refining	101.3	74	JD.com	China	Internet Services and Retailing	122.7	102
19	HDFC Bank	India	Banks: Commercial and Savings	97.9	-	Tata Consultancy Services	India	Information Technology Services	115.3	-
20	Gazprom	Russia	Energy	94.2	42	PetroChina	China	Petroleum Refining	112.0	4*

* Based on the ultimate parent company rank.

Source: EMI Research team based on Financial Times' Global 500 December 2009 (http://media.ft.com/cms/419e021c-fecd-11de-91d7-00144feab49a.pdf) accessed April 2020, S&P Capital IQ (https://www.capitaliq.com/), and Fortune Global 500 data (https://fortune.com/global500) accessed September 2020.

[2] This figure is available for the top 50 of each industry in the Appendix.

The growth of emerging market stock exchanges is, in part, the consequence of the largest IPOs in these countries. Table 1.5 presents the largest IPOs since 2010, and more than half were from eMNCs. Saudi Aramco in 2019 was the largest after Alibaba's in September 2014 claimed the same title following its history-making IPO. According to Bloomberg, as of early November 2020, the Chinese Ant Group, part of Alibaba, was on its way to the largest IPO in history, to be held at Shanghai and Hong Kong exchanges, with a USD34.5 bn expected market value. This offer size would bring the company to the top of the most valuable financial firms, ahead of the American JPMorgan Chase & Co[3]. Table 1.5 shows that eMNCs are amongst the biggest IPOs in history. Among the top 50, most come from emerging countries. Within the last decade, Brazil, Malaysia, and South Korea each housed history's largest IPOs.

Table 1.5. Largest Initial Public Offering transactions in the World, since January 2010.

	Company	Ticker	Ultimate Parent	Headquarter*	Announce	Effective	Offer Size (US$ M)	Offer Close	Offer after 1 Month	Last Close**
1	Saudi Aramco	ARAMCO AB	-	Saudi Arabia	Nov/19	Dec/19	29,438.4	31%	29%	113%
2	Alibaba	BABA US	-	China	May/14	Sep/14	25,032.3	56%	43%	409%
3	SoftBank Group	9434 JP	-	Japan	Nov/18	Dec/18	21,140.2	-1%	0%	87%
4	AIA Group	1299 HK	-	China	May/10	Oct/10	20,388.1	87%	74%	402%
5	General Motors	GM US	-	U.S.	Aug/10	Nov/10	18,140.1	11%	9%	96%
6	Facebook	FB US	-	U.S.	Feb/12	May/12	16,006.9	2%	-55%	693%
7	Alibaba	9988 HK	-	China	Nov/19	Nov/19	12,923.2	4%	11%	152%
8	Dai-ichi Life Holdings	8750 JP	-	Japan	Feb/10	Apr/10	11,065.7	0%	0%	1%
9	Agricultural Bank of China	601288 CH	-	China	Apr/10	Jul/10	10,039.4	28%	14%	118%
10	Glencore	GLEN LN	-	China	Apr/11	May/11	9,854.3	0%	-2%	35%
11	Japan Airlines Company	9201 JP	-	Japan	Aug/12	Sep/12	8,437.2	0%	0%	56%
12	Uber Technologies	UBER US	-	U.S.	Apr/19	May/19	8,100.0	-17%	-4%	84%
13	Postal Savings Bank of China	1658 HK	China Post Group	China	Sep/16	Sep/16	7,624.2	4%	-265%	71%
14	China Tower	788 HK	-	China	Jul/18	Aug/18	7,491.6	0%	-693%	113%
15	SMIC	688981 CH		China	Jun/20	Jul/20	7,468.0	735%	638%	210%
16	National Commercial Bank	NCB AB	-	Saudi Arabia	Apr/14	Nov/14	5,999.5	22%	57%	85%
17	Budweiser APAC	1876 HK	Anheuser-Busch InBev	Belgium	Sep/19	Sep/19	5,756.1	16%	23%	91%
18	Japan Post Holdings	6178 JP	-	Japan	Sep/15	Nov/15	5,746.3	2%	3%	54%
19	BB Seguridade Participações	BBSE3 BZ	Banco do Brasil	Brazil	Apr/13	Apr/13	5,668.6	-14%	38%	154%
20	Hutchison Port Holdings	HPHT SP	CK Hutchison Holdings	China	Feb/11	Mar/11	5,453.5	-588%	-637%	12%
21	Xiaomi	1810 HK	-	China	May/18	Jul/18	5,428.6	-7%	5%	125%
22	Innogy SE	IGY GR	E.ON	Germany	Aug/16	Oct/16	5,179.0	-1%	-9%	0%
23	Huatai Securities	6886 HK	-	China	May/15	Jun/15	4,999.9	20%	-47%	51%
24	Medibank	MPL AU	-	Australia	Oct/14	Nov/14	4,985.7	350%	950%	127%
25	Siemens Healthineers	SHL GR	Siemens	Germany	Nov/17	Mar/18	4,977.4	35%	58%	135%
26	Japan Post Bank	7182 JP	Japan Post Holdings	Japan	Sep/15	Nov/15	4,958.9	1%	2%	60%
27	Guotai Junan Securities	601211 CH	-	China	May/15	Jun/15	4,852.0	223%	224%	92%
28	Aena SME SA	AENA SM	-	Spain	Jan/15	Feb/15	4,798.0	36%	70%	209%
29	Petronas Chemicals Group	PCHEM MK	Petronas	Malaysia	Nov/10	Nov/10	4,775.8	106%	201%	111%
30	Postal Savings Bank of China	601658 CH	China Post Group	China	Jun/19	Dec/19	4,764.1	36%	122%	83%
31	Knorr-Bremse	KBX GR	-	Germany	Sep/18	Oct/18	4,500.8	2%	6%	127%
32	JD.com	9618 HK	-	China	Jun/20	Jun/20	4,459.1	2%	3%	127%
33	Bankia	BKIA SM	-	Spain	Apr/11	Jul/11	4,428.9	0%	-36%	38%
34	HCA Healthcare	HCA US	-	U.S.	Dec/10	Mar/11	4,353.9	11%	35%	460%
35	Beijing-Shanghai High-Speed Railway	601816 CH	-	China	Oct/19	Jan/20	4,341.2	794%	1016%	126%
36	Samsung Life Insurance	032830 KS	-	South Korea	Mar/10	May/10	4,323.3	0%	0%	57%
37	Foxconn Industrial Internet	601138 CH	Hon Hai Precision Industry	China	Feb/18	Jun/18	4,306.1	320%	182%	98%
38	Meituan Dianping	3690 HK	-	China	Sep/18	Sep/18	4,221.8	8%	-29%	349%
39	ABN AMRO Holding	ABN NA	-	Netherlands	Jul/15	Nov/15	4,212.9	19%	71%	45%
40	Aurizon Holdings	AZJ AU	-	Australia	Oct/10	Nov/10	4,159.1	333%	583%	174%
41	GF Securities	1776 HK	-	China	Mar/15	Apr/15	4,136.2	184%	145%	51%
42	Kyushu Railway	9142 JP	-	Japan	Sep/16	Oct/16	4,068.5	1%	1%	87%
43	Dalian Wanda Commercial Management	1567411D HK	Dalian Wanda Group	China	Dec/14	Dec/14	4,039.7	-5%	-4%	0%
44	Pershing Square Tontine	PSTH/U US	-	U.S.	Jun/20	Jul/20	4,000.0	33%	33%	111%
45	Snap Inc.	SNAP US	-	U.S.	Feb/17	Mar/17	3,910.0	259%	191%	146%
46	Worldpay Group	WPG LN	FIS Global	U.S.	Sep/15	Oct/15	3,870.3	4%	6%	0%
47	Suntory Beverage & Food	2587 JP	Suntory Holdings	Japan	May/13	Jul/13	3,843.9	0%	0%	128%
48	Allied Irish Banks	ALBK LN	-	Ireland	May/17	Jun/17	3,837.2	-2273%	217%	0%
49	CGN Power	1816 HK	-	China	Nov/14	Dec/14	3,637.6	686%	776%	59%
50	People's Insurance Co. of China	1339 HK		China	Nov/12	Dec/12	3,562.0	198%	504%	69%

* Based on the ultimate parent company rank.

Source: EMI Research team based on Bloomberg Terminal (https://www.bloomberg.com) and S&P Capital IQ (https://www.capitaliq.com/), accessed September 2020.

[3] As of January 8, 2021, Ant Financial's IPO was postponed

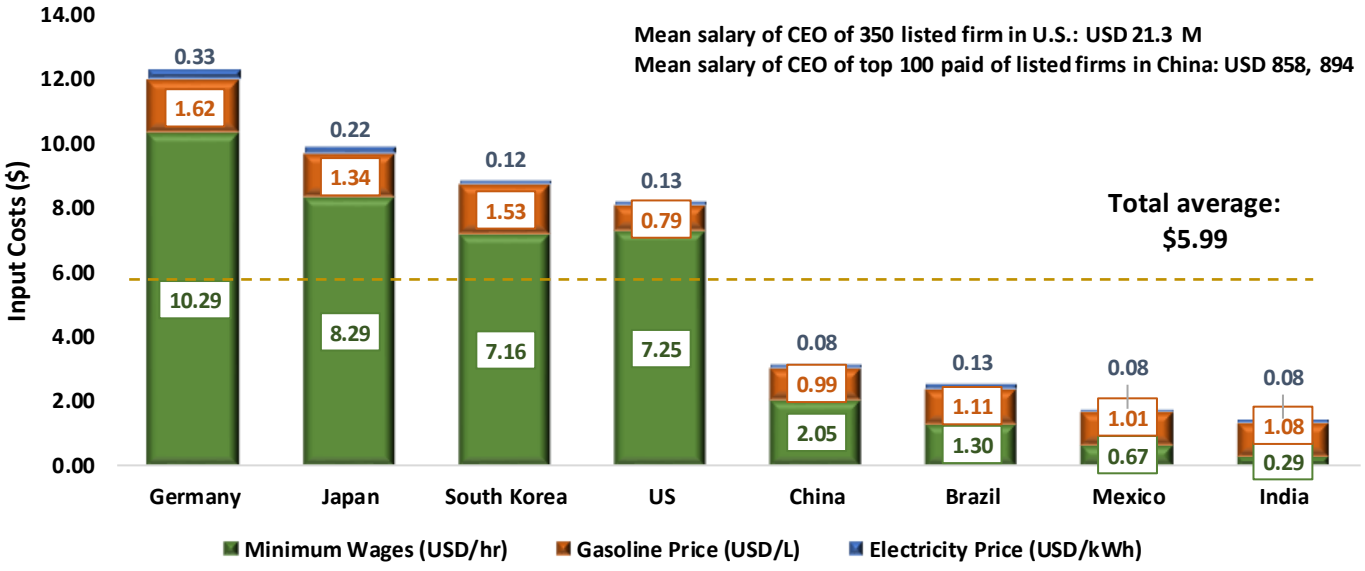
The supremacy of the American stock markets is correlated with the fact that the business sector is dominated by public companies. This is less the case in the rest of the world. As covered earlier in this chapter and in previous EMI reports, State Owned Enterprises are more common in emerging markets as well as in Europe and Japan. This different type of ownership indicates that the value and role of stock markets may not be as prominent outside the U.S. However, China accounts for almost one-third of the global increases in stock market values in 2020's second semester

1.3. Competing on Price: Emerging Market Multinationals Business Model

In this section, we consider how eMNCs systematically compete on prices across products and services in different industries. Dominant for the last 50 years, the Milton Friedman doctrine of maximizing shareholder value went hand-in-hand with strategies for maximizing consumption and consumers' willingness to pay (WTP). eMNCs adjust to the environment of lower purchasing power by offering products and services at a price that their consumers can afford, feasible in part because their input costs are lower. Minimum wage, electricity, and gasoline (the bulk of manufacturing costs) skew lower in emerging markets (see Figure 1.6). Only labor cost is not the sole variable for commanding an edge. Productivity (per hour and per employee) is equally important. Here, countries like Norway, the United States and Germany still lead, thereby competing with countries with much lower labor costs.

This systematic business strategy of competing at low prices has had devastating effects in some industries putting competitors out of business because of their inability to maintain profitability at low selling points. In the exercise below, we will demonstrate how, in certain categories like smartphones, Chinese firms dominate the world in terms of market share. This is forcing a change of strategy for U.S. firms, which are compelled to lower the prices for desktops or TVs or smartphones for instance if they want to continue to be prevalent in those industries. The core of competition is being upended and, if a western presence should prevail, prices and salaries will need to be reconsidered.

Figure 1.6. Comparison of cost prices labor, gasoline and electricity prices, among different countries.



Source: EMI Research team based on Economic Policy Institute (https://www.epi.org/) accessed September 2020, China Daily (http://global.chinadaily.com.cn/), accessed September 2020, International Energy Agency (https://www.iea.org/) accessed September 2020; 2018 World Energy Trilemma Index Report, and OECD, Trading Economics.

China has proven to be competitive not just because of lower labor costs but in the seamless integration of its value chains and logistics. As automation in manufacturing plants dilute the labor advantage and the lockdowns increase the sense of urgency for more resilient, flexible, and regional Global Value Chains (see Chapter 4 and 7), emerging markets now come to factor in new ways.

Below we explore what persists across eMNCs, namely a business model strategy of low prices. As with previous reports (Casanova and Miroux 2017-2018 and 2019b), we describe the exercise of comparing prices of different products and services of firms

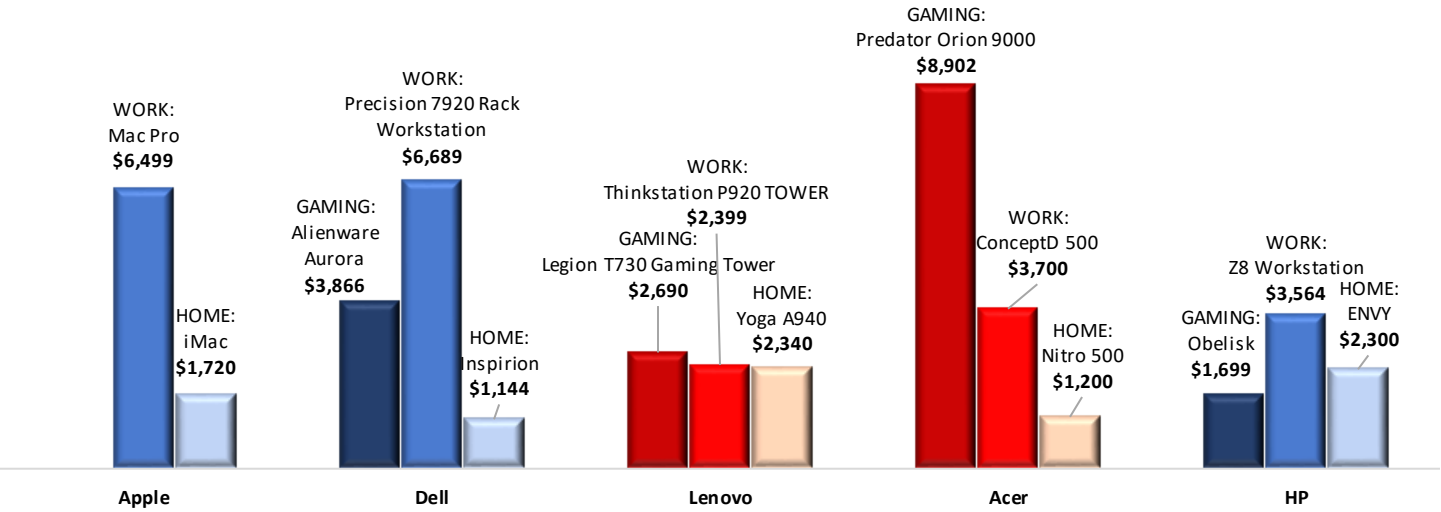
with the highest global market share (see methodology in appendix). We start with technological products: desktops, laptops, and smartphones, and then we move to white goods: refrigerators, washing machines, and TVs.

First, we look at **desktops** with similarly high processing power. According to Figure 1.7, the five companies with the largest market share are all Chinese and American: Lenovo (22%), HP (20.4%) Dell (19.9%), Acer (3.6%) and Apple (2.7%)[4]. For desktops, we cover the following categories:

- Gaming, at an average price of $4,289 ($5,795.96 for Chinese firms and $2,783 for US firms).
- Work, at an average price of $4,570 ($3,049 for Chinese firms and $5,584 for US firms).
- Home desktop, at an average price of $1,741 ($1,770 for Chinese firms and $1,721 for US firms).

The strategy of Chinese firms competing through lower prices is changing. For home desktops, Chinese and American firms show similar prices for comparable goods. For gaming desktops, Chinese prices are even higher on average, by as much as USD 3,000, due in part to the creation and marketing of Chinese desktops specialized for gaming, adding speed and high-quality graphics. Still, for work desktops prices, American firms are higher by around USD 2,500 on average, on account of stronger processing power and storage.

Figure 1.7. Desktop Price Comparison (USD), February 2020



Sources: EMI Research team based on price collections in Apple (www.apple.com), Dell (www.dell.com), Lenovo (www.lenovo.com), Acer (store.acer.com), Hewlett-Packard (store.hp.com), and Amazon (www.amazon.com), accessed March 2020.

For **laptops** (Figure 1.8), the five companies with the largest market share are likewise exclusively American and Chinese: the Chinese Lenovo (24.3%), the Americans HP (23.6%) and Dell (17.4%), the Taiwanese Acer (6.7%) and Asustek Computer (6.4%), and the American Apple (5.6%).

- Gaming, at an average price of $4,540 with Chinese firms at $5,150.99 and $2,783 for US firms).
- Work, at an average price of $4,417 with Chinese firms at $5,176 higher than US firms: $5,584
- Home, at an average price of $2,138 ($2,176 for Chinese firms and $2,099 for US firms).

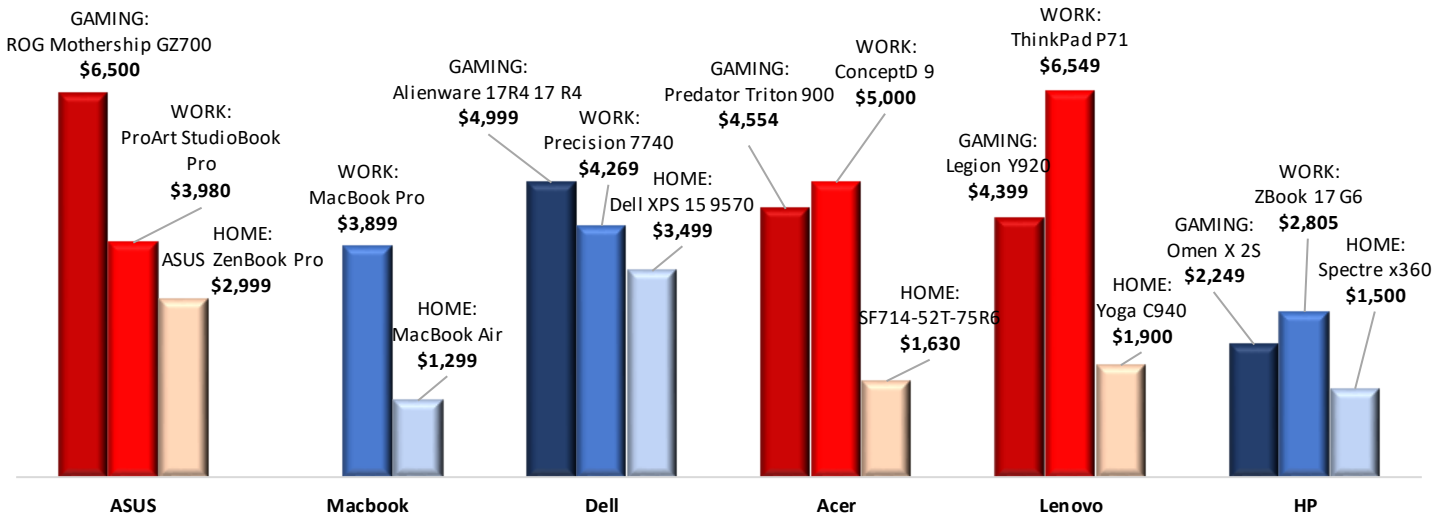
Like the global desktop market share, Chinese firms no longer follow their own tradition of competing on prices, with the average cost of products exceeding that of their American counterparts. Overall, Chinese firms list much higher prices for gaming and work laptops compared to those sold by American firms. Here, it is worth noting that China currently touts the largest gaming industry in the world. Only, home laptops still prove nearly indistinguishable in terms of price.

It should be stressed that both U.S. and Chinese firms brand their gaming and work laptops with different brands. For gaming desktops/laptops, Predator is the brand for the Taiwanese Acer, Legion for the Chinese Lenovo, Omen for the Americans HP, and

[4] The work in this section of Klaudia Kokoszka, Research Assistant at EMI, is gratefully acknowledged.

Alienware for Dell. For work desktops/laptops, ThinkStation is the brand for the Chinese firm Lenovo and ConceptD for the Taiwanese firm Acer.

Figure 1.8. Laptop* Price Comparison (USD) in February 2020



Sources: EMI Research team based on price collections in Apple (www.apple.com), Dell (www.dell.com), Lenovo (www.lenovo.com), Acer (store.acer.com), Hewlett-Packard (store.hp.com), and Amazon (www.amazon.com), accessed March 2020.

We move now to **smartphones**, one of the most successful technology products worldwide and at the center of the ongoing trade war (see Chapters 3 and 4). The Chinese Huawei, the largest provider of telecom products worldwide is the target of the United States, taking the brunt of US restriction measures and penalties (Casanova and Miroux 2019). As the saying goes: there is no bad publicity, and in February 2020, Huawei's global market share increased along with the number of units sold (17.5%), second only to the Korean Samsung (21.6%), but ahead of the American Apple (13.9%) (see Blomberg, February 2020). The other two players are also Chinese, Xiaomi with 9.2% market share, and OPPO with 8.3%.

Table 1.6. Global Smartphones market share and in the U.S., China, Germany and U.K. (by % of units sold, February 2020)

Company	Country	% by unit sold	% in the U.S.	% in China	% in Germany	% in the U.K.
Samsung	South Korea	21.6	23.5		41	29.5
Huawei	China	17.5		38.3	16.8	8.2
Apple	U.S.	13.9	42.8	8.9	29.2	49.2
Xiaomi	China	9.2		10.9	2.8	
OPPO	China	8.3		17.1		
LG	South Korea	8	11.3			
Motorola/Lenovo	China	3	8			
vivo	China			18.1		2.2
Sony	Japan				1.5	
Google	U.S.					1.3
Other		18.5	14.5			

Source: EMI Research team based on Bloomberg Terminal, accessed in April 2020; Statista. "Market share of leading mobile device vendors in the United Kingdom (UK) from 2010 to 2019". S. O'Dea. Updated April 21, 2020.

The vast majority of Huawei users are located within the Chinese territory, while users of Samsung devices are spread more broadly across the globe. Samsung claims a large share of consumers in the U.S. market, preceded only by its most powerful competitor, Apple. Samsung dominates the German market with a 41% share and commands almost a 30% share of the UK market. Meanwhile, Huawei internationalized its products with great success, becoming a popular smartphone brand across Europe, already claiming more than 8% of the UK market after having only entered in 2018.

One could pinpoint Huawei's success to its targeting of top and bottom segments of the markets that it competes in. In the UK, Huawei offered the most expensive phone at USD 2,875 and the least expensive at USD 112 (Figure 1.10). offering an extensive price range for smartphones. While Chinese firms gained much traction in Germany and across Europe by attracting consumers favoring lower prices, Huawei diversified worldwide, aiming both at advanced and emerging markets. Apple's current shortfall is

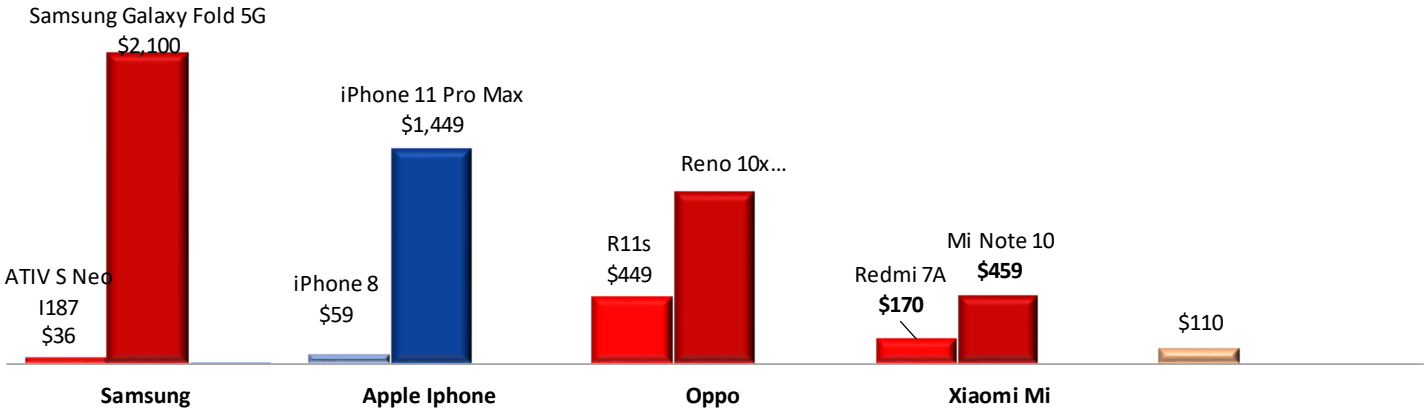
because it avoids the low-end segment. The release of the latest iPhone SE, starting at USD 399, is indicative of Apple's attempt to appeal to consumers attracted to lower prices. Only here, its price would still not come near its biggest competitors, now selling comfortably at the more affordable USD 100-200 price range.

In the United States, while Apple iOS proved a popular operating platform of choice due to its smooth user interface and compatibility across Apple devices, Google Android would overtake the segment from 2012 through 2019, holding a whopping 51.8% share. Nevertheless, Apple retained much of its share through highly effective marketing and brand recognition strategies. The presence of RIM/Blackberry and Microsoft in the smartphone market gradually declined since 2012, reaching an all-time low of 0.2% and 0.5%, respectively. Overall, this trend speaks to the homogenization of the US subscriber share smartphone operating system, with two indisputable leading competitors, Apple and Google Android (Figure 1.11).

Huawei, like Xiaomi and Oppo, mastered targeted marketing and brand recognition methods, modeling their strategies after Apple, only to rival the former incumbent. It is uncertain whether Huawei phones will ever be granted permission to be sold within U.S. territory, due to sanctions and bans imposed on the basis of national security in the 5G networks where they have a technological advantage (Figure 1.9 and Figure 1.10). Still, Huawei's market proliferation is occurring in advanced and emerging European markets at a rapid clip, harnessing high-marketing investment, and branding strategies. The company now bears the third-largest smartphone brand presence in both Germany and the U.K., behind only Samsung and Apple. Their reach looms even larger in other less economically powerful European markets, where affordability is a key feature of appeal to consumers.

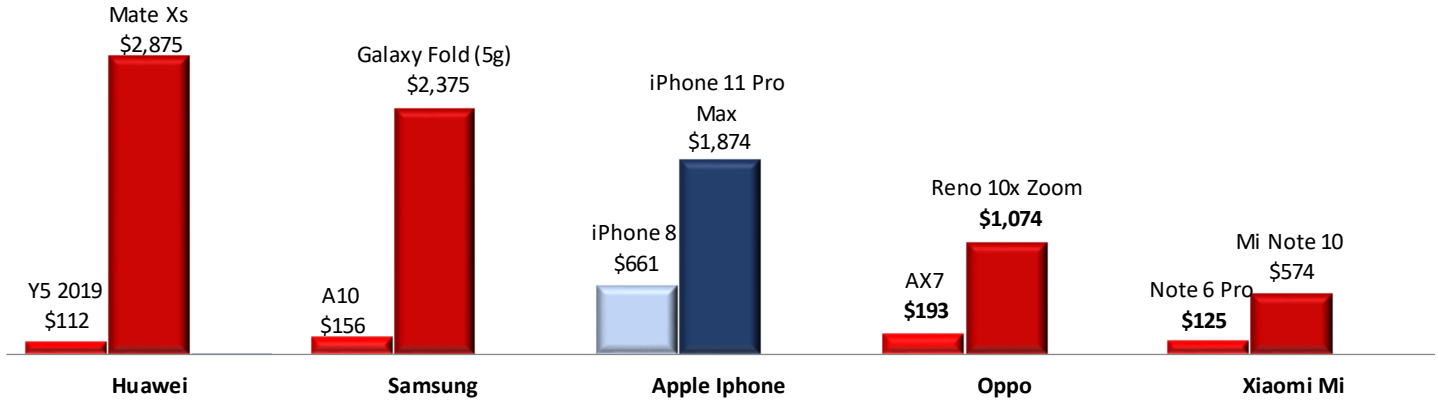
Figure 1.9 and Figure 1.10 bring the price comparison of the selected brands in the U.S. and the U.K. for most expensive and cheapest models. Figure 1.11 brings the share of subscribers in the U.S. per operating system.

Figure 1.9. Smartphone Price Comparison – in the U.S. market (USD)



Sources: EMI Research team based on price collections in Apple (www.apple.com), and Amazon (www.amazon.com), accessed March 2020.

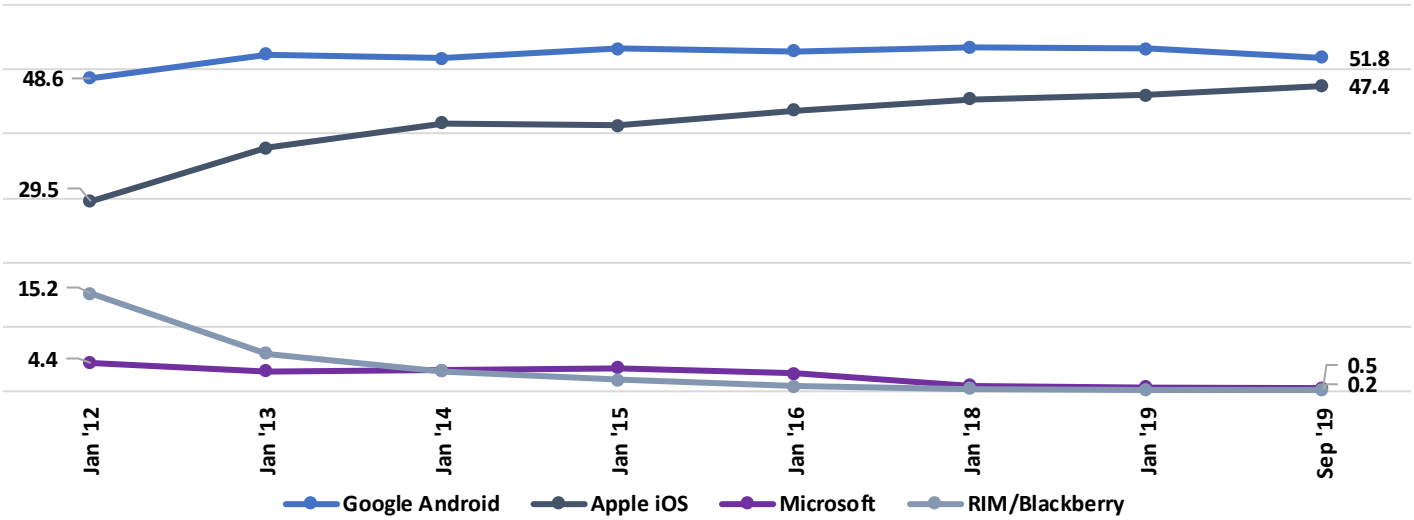
Figure 1.10. Smartphone Price Comparison – in the U.K. market (prices in USD)[5]



Sources: EMI Research team based on price collections in Huawei (www.huawei.co.uk), Amazon (www.amazon.co.uk), and Oppo (www.oppo.co.uk), accessed March 2020.

[5] Currency conversion as on April 9, 2020, 1:21pm

Figure 1.11. U.S. subscribers share by Smartphone operating system (Jan '12 – Sept '19)

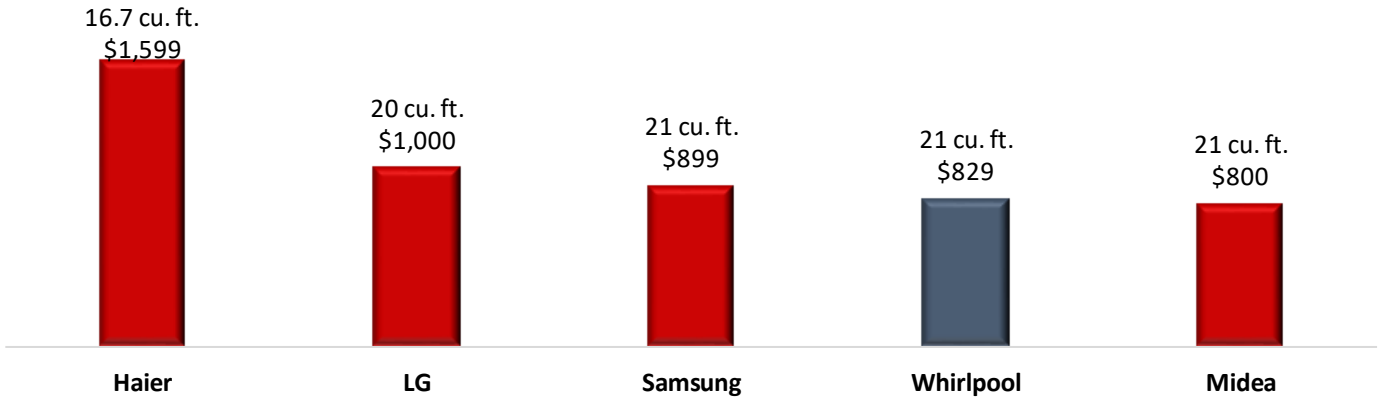


Source: EMI Research team based on Statista. "U.S. smartphone subscriber share by operating platform 2012-2019, by month". S. O'Dea, Published Feb 2020.

We move now to market share and prices of **white goods**. In April 2020, according to Statista's global comparison in revenues in the refrigerators segment, the top-grossing market globally was China, with a revenue of USD 26.6 billion, India with USD 12.5 billion, the United States with USD 9.5 billion, Brazil with USD 5.2 billion, and Indonesia with USD3.3 billion. The Chinese Haier dominates with a 17.3% market share, followed by Korean LG (6.9%), Korean Samsung (6.1%), American Whirlpool (4.6%), and Chinese Midea (3.7%).

As for white goods, the data shows pricing consistency across American and Chinese firms (Figure 1.12). While American and Japanese firms bore a larger selection and more advanced features, Chinese firms prioritized a narrower selection of less technical products. Chinese firm Haier's refrigerator standard sizes are smaller than competitors, catering mostly to the Chinese domestic market. Thus, the standard Chinese refrigerator size sold by Haier is cheaper than the standard U.S. size, at USD 1,599 for 16.7 cubic feet.

Figure 1.12. Refrigerator[6] price comparison – US market



Sources: EMI Research team based on Haier Appliances (www.haieraplliances.com), LG (lg.com), Samsung (www.samsung.com), Whirlpool (www.whirlpool.com), and Midea (us.midea.com), accessed April 2020.

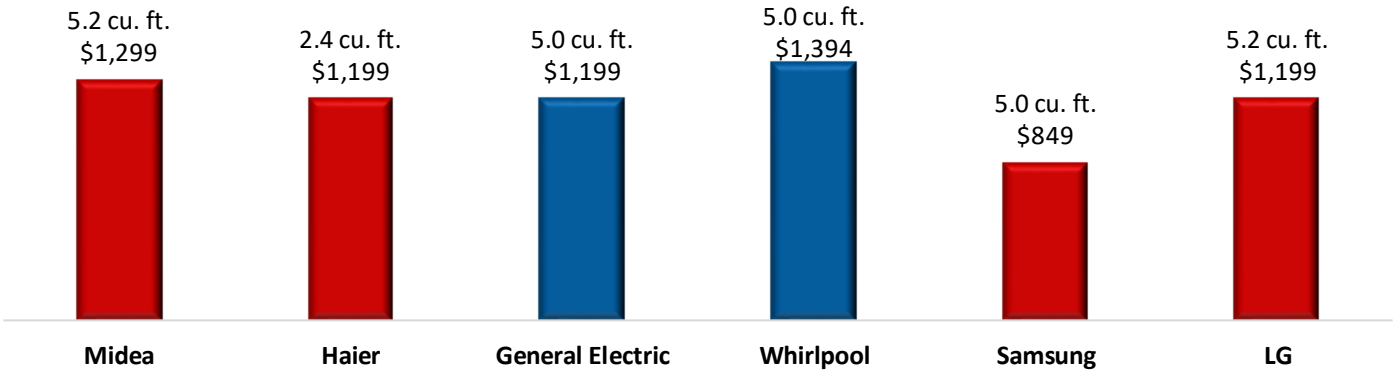
Regarding **washing machines** (Statista, 2019), in the U.S. market, the three dominant American brands are Whirlpool with 29% market share, Maytag with 16%, and GE with 14%, followed by the Koreans LG with 10% and Samsung with 8%. Chinese firms do not possess a material market share in the United States for this category. This also applies to refrigerators and other white goods. This may not change any time soon, as an emerging middle class in China, South Asia, and Southeast Asia provides a growing consumer

[6] We looked specifically at top-freezer refrigerators between 20 and 21 cu. ft. except for Haier. The only refrigerator available of comparable size was 16.7 ct ft.

base for the smaller, cheaper, and less high-tech white goods China produces. It can be presumed that these markets currently make up a significant bulk of those consuming new white goods and Chinese firms are ready to cater to them.

Likewise, Korean firms compete on price, but with larger product selection, more product diversity, and high-tech features in line with the markets in which they compete. LG and Samsung both possess large portions of the U.S. market share in washing machines. Korean firms selling washing machines in the United States offer affordable prices relative to domestic competitors, with Samsung's 5.0 cubic feet washing machine priced at USD 849 as opposed to GE's more expensive 5.0 cubic feet washing machine, priced at USD 1,199 (Figure 1.13).

Figure 1.13. Washing Machine[7] Price Comparison – US market

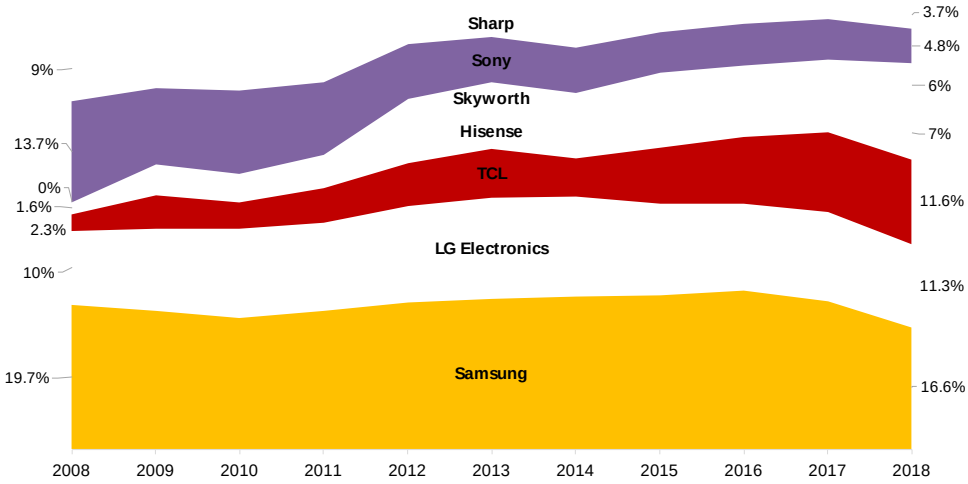


Sources: EMI Research team based on Haier Appliances (www.haieraplliances.com), LG (lg.com), Samsung (www.samsung.com), Whirlpool (www.whirlpool.com), Midea (us.midea.com), and General Electric (products.geappliances.com), accessed April 2020.

Such relatively low prices of Korean white goods could explain why Chinese companies have not managed to dominate the U.S. washing machine market as they fail to adjust their product selection to more budget-friendly prices for a wider range of consumers. For refrigerators, Chinese firms possess a sizeable portion of the global market, totaling 13% in 2017.

Regarding **LCD TV** global TV market share (Figure 1.14), in 2018, Korean Samsung led with 16.6%, followed by Chinese TCL with 11.6%, the Korean LC with 11.3%, and the Chinese Hisense with 7% and Skyworth with 6%. Until 2008, Chinese firms held a small share of the global LCD TV market, with over 29% claimed by Korean firms and approximately 23% by Japanese firms. The growth in the market share of Chinese firms throughout the last decade would come at the expense of Japanese firms, which shrunk to only 8.5% by 2018, all while Korean firms fluctuated in the high 20s, losing mostly to Chinese firms TCL (11.6%), Hisense (7%), and Skyworth (6%). Skyworth's remarkable increase is worth highlighting, from obscurity to 6% by 2018.

Figure 1.14. Global Market Share of LCD TV manufacturers from 2008 to 2018

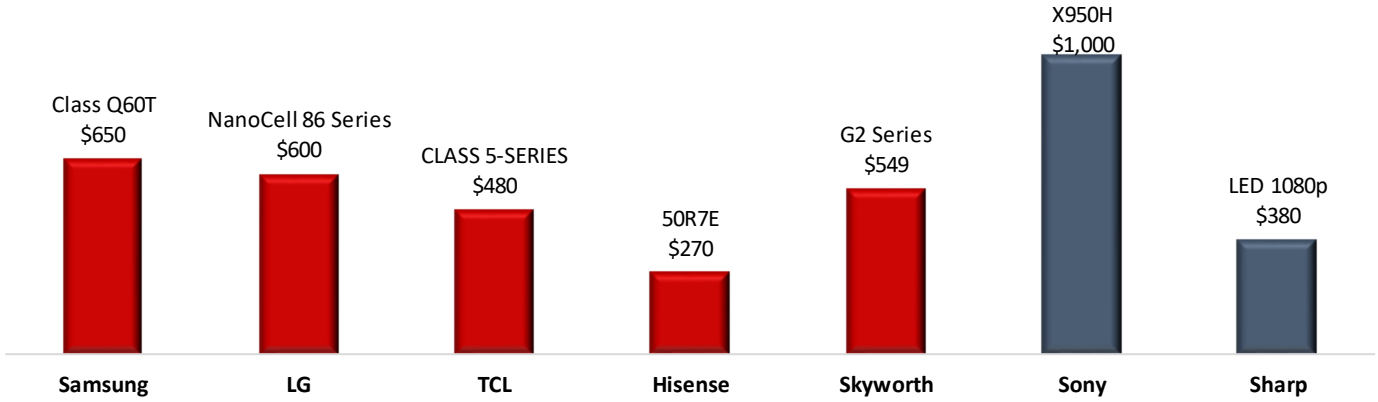


Source: EMI Research team based on Statista. "LCD TV manufacturers global market share 2008-2018". Statista Research Department, Published by Feb 19, 2020.

[7] We looked exclusively at front load washers between 5.0 and 5.2 cu ft capacity, except for the case of Haier. Haier only sells a washer at 2.4 Cu. Ft.

In the LCD TV market, Chinese firms compete mostly on price (Figure 1.15), skewing much lower on average than the equivalent products sold by Korean or Japanese firms. The investments in LCD research over the past decades speak to this, while still foregoing marketing or brand recognition strategies. All told, the Japanese Sony and Sharp, have seen a dramatic decline in their global share, plummeting from 13.7% to 4.8%, and from 9% to 3.7%, respectively. Here, Chinese firms stick to their strength in price competition but are at times outmatched by Korean firms. American firms fall short on price competition owing to high labor costs, inefficiencies in production, and dwindling manufacturing infrastructure.

Figure 1.15. LCD Smart TV[8] Price Comparison – US Market



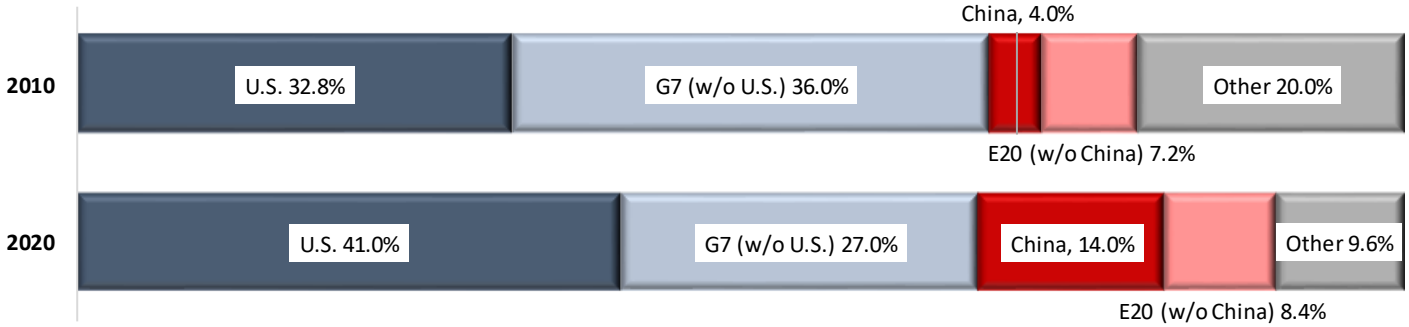
Sources: EMI Research team based on Amazon (www.amazon.com), for Hisense & Sharp; Samsung (www.samsung.com); LG (www.lg.com); TCL (www.tclusa.com); Skyworth (www.skyworthusa.com); and Sony (www.sony.com). Accessed April 17, 2020.

But is this low-price strategy the consequence of a lack of brand recognition? And will prices go up once they achieve brand recognition? The next section explores how E20 brands fare vis-à-vis their G7 counterparts.

1.4. Achieving Brand Recognition

Looking back at the previous section and the previous reports, the business strategy of eMNCs, mainly Chinese but also Korean, is shifting. Initially, a low-price strategy was enough to fend off many western competitors who were unable to compete and solidify the place of Chinese and Korean firms in products like smartphones. However, as their market shares increased so did the brand recognition (Figure 1.16) and prices picked up accordingly. This phenomenon accelerated even against the backdrop of the U.S.-China trade war. As we have seen in the previous section and even as Huawei fell prey to restrictions and penalties in the United States, it also increased its market share globally and became number two in the world, above Apple. As expected, overall brand recognition of Chinese firms made headway in both BrandZ and Brand Directory (Figure 1.16).

Figure 1.16. Top 500 Brands by Country, G7 and E20 (%)



Sources: EMI Research team based on Brand Finance (https://brandirectory.com/) Global 500 2010 and 2020, both accessed May 2020.

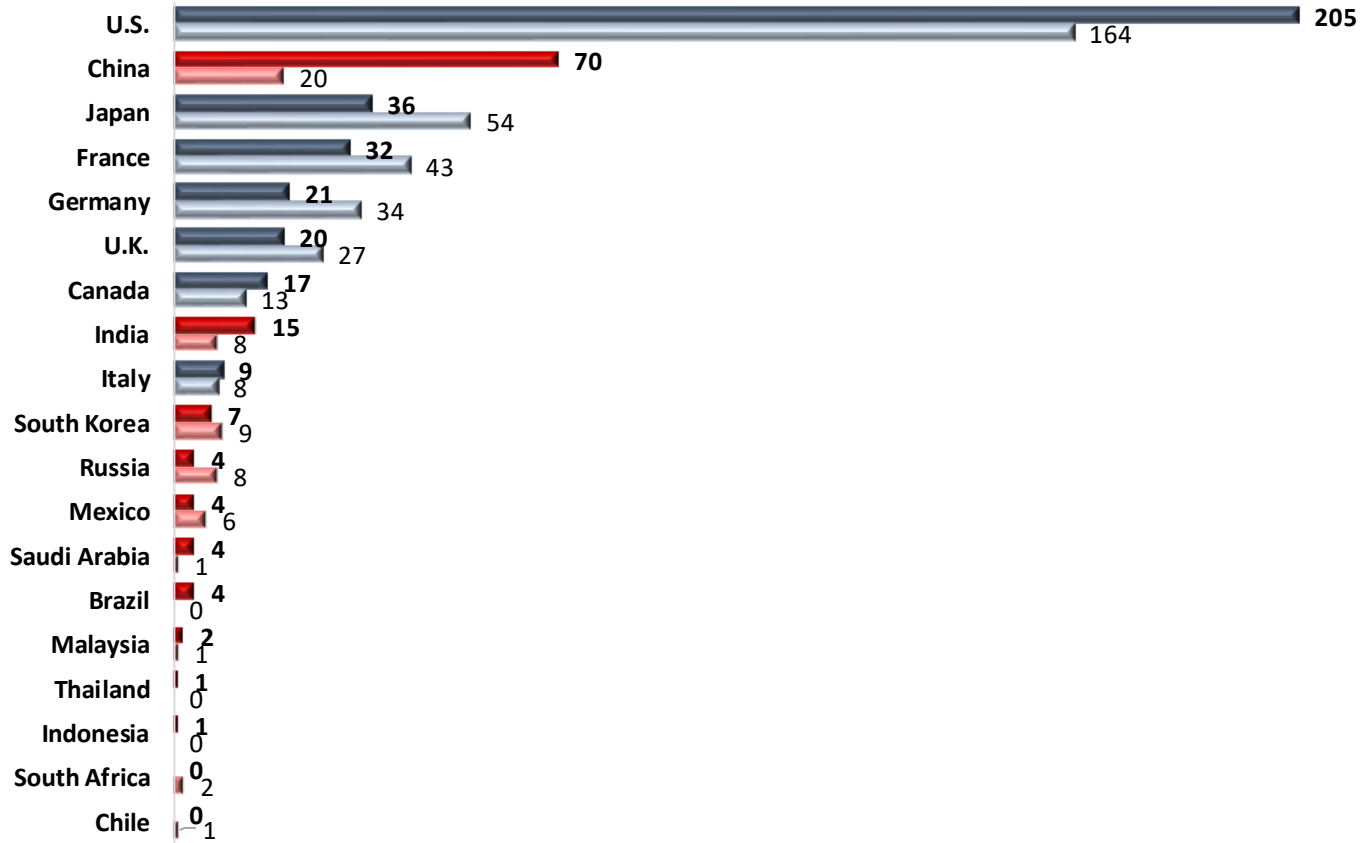
[8] We looked exclusively 49' or 50" television. All televisions are smart TVs.

From 2010 to 2020, the United States dominated the list of the top 500 brands globally, making up 41% of all the highest value brands, and its representation on the world stage increased by 8.2%. The growth of the U.S. brands mirrored the loss by other G-7 firms. E20 representation growth was mostly driven by Chinese firms whose share in the top 500 global brands increased by 10%. Meanwhile, representation by all other E20 nations grew by only 1.2%. Brands represented in the top 500 categorized as "Other" consist of advanced economies but not those belonging to the G-7 and dropped by 10%. This is likely due to industry consolidation in advanced economies and M&A of high-value global brands by U.S. firms, as well as by the rise in China's brand influence worldwide.

The country which saw the largest drop in representation was Japan, with 18 fewer high-value brands in 2020 than at the start of the last decade (Figure 1.17). The increased competition with China in Asian markets (see the previous section) and the consistent economic contraction over the last few decades, could explain Japan's loss of high-value brands. European brands in general and Germany, France, and the U.K., in particular, saw a drop in their top 500 brand representation. France still tops the U.K. and Germany in this ranking, with a total number of 32 brands in the top 500. Italy, unlike the aforementioned countries, remained stable throughout the previous decade, with nine major brands included in the 2020 list.

China has seen the largest gains in high-value brands, resulting from sheer economic growth and global expansion (Figure 1.17 and Table 1.7. Many E20 countries either had no firms or just a few. Besides China, the most notable increase comes from India, rising through the ranks from 8 to 15 high-value brands over the course of the last decade. The average increase over 10 years in representation of brands across both the G-7 and E20 countries is +1.9. If we consider only the G7 countries, the average number of brands went down -0.6.

Figure 1.17. E20 + G7 Countries, Top 500 Brands (2020, 2010) [9] [10]



Sources: EMI Research team based on Brand Finance (https://brandirectory.com/) Global 500 2010 and 2020, both accessed May 2020.

[9] Argentina, Chile, Colombia, Egypt, Pakistan, Iran, Nigeria, Philippines, Poland, South Africa and Turkey had no brands listed in the Global Top 500 2020

[10] Argentina, Colombia, Egypt, Pakistan, Iran, Nigeria, Philippines, Poland and Turkey had no brands listed in the Global Top 500 2010

Table 1.7. Change in Number of Top 500 Brands from 2010 to 2020

	Number of Top 500 Brands		Change from 2010 to 2020		
Country	2010	2020	Overall	E20 nations	G-7 nations
Argentina	0	0	0	0	
Brazil	0	4	4	4	
Canada	13	17	4		4
Chile	1	0	-1	-1	
China	20	70	50	50	
Colombia	0	0	0	0	
Egypt	0	0	0	0	
Pakistan	0	0	0	0	
France	43	32	-11		-11
Germany	34	21	-13		-13
India	8	15	7	7	
Indonesia	0	1	1	1	
Iran	0	0	0	0	
Italy	9	9	0		0
Japan	54	36	-18		-18
Malaysia	1	2	1	1	
Mexico	6	4	-2	-2	
Nigeria	0	0	0	0	
Philippines	0	0	0	0	
Poland	0	0	0	0	
Russia	8	4	-4	-4	
Saudi Arabia	1	4	3	3	
South Africa	2	0	-2	-2	
South Korea	9	7	-2	-2	
Thailand	0	1	1	1	
Turkey	0	0	0	0	
United Kingdom	27	20	-7		-7
United States	164	205	41		41
Average change (in each respective category)			**1.9**	**2.7**	**-0.6**

Sources: EMI Research team based on Brand Finance (https://brandirectory.com/) Global 500 2010 and 2020, both accessed May 2020.

One could expect that brands from Emerging Markets will continue increase their brand value in the next decade. As was the case with Japanese products and then Korean, the perception about the quality of Chinese brands will improve. This is starting to be seen in laptops and smartphones, among other categories. Also, in services, we see the perception of the quality of airlines (Casanova and Miroux 2018) moving to those outside Europe or the U.S. The consequences of better brands on the low-cost business strategy of eMNCs remain to be seen. As has started happening with smartphones, we expect an increase in prices in some products. As is happening with TVs and even in the case of Apple, this may force U.S. and European firms to offer products and services at lower prices and, in the end, question their internal strategies and long-term vision. Will an increase in shareholder value continue to be as prevalent a strategy when you compete head-on with State-Owned Enterprises with completely different goals? We examine this issue in the next section and this will also be a subject to continue exploring in reports in coming years.

1.5. eMNCs beyond the Great Lockdown crisis?

This has been a decade of consolidation amongst emerging market multinationals, which have successfully gone up in the value chain through valuable brands in a diverse range of sectors including banking, technology, electrical vehicles, white goods, mobile telecoms, and online retail. Korean companies such as Samsung and LG and Chinese firms including Huawei, Xiaomi, Haier, Lenovo, ICBC, Alibaba, and Tencent have become household names all over the world.

Emerging markets also represent a heterogeneous set of countries and the COVID crisis has accentuated some of the divides within the group. Asia has fared very well, thanks primarily to the successful growth and rise of China and Korea. India was growing steadily, albeit more slowly than China until the COVID crisis, and may now suffer one of the largest economic contractions in 2020 (see Chapter 3). This may have a negative impact on the global presence of Indian firms. Latin American firms have been lagging given the economic underperformance of the region over the past decade and after having been hit hard by the COVID-19 crisis are expected

to see their economies shrink strongly this year. Africa, thankfully, has been missed the brunt of the COVID-19 crisis thus far but its companies still need to grow and mature on the global stage.

As this chapter illustrates, eMNCs, mainly Chinese and Korean firms, have asserted their power over the last decade. They top the global league tables in multiple dimensions including revenues (Casanova and Miroux 2018 and 2019a) and market capitalization. They have also captured the highest market share in a number of industries. This shift towards Asia will continue to be felt across the business world with implications for what is taught and researched in business schools and beyond (Chapter 4).

As the COVID-19 crisis continues, few Asian nations such as China, Vietnam, and Korea are close to full recovery from the pandemic. Accordingly, their companies have shown to be primed to recover their former strengths. Time will tell what will become of the indelible mark eMNCs have left and will leave on a world being remade.

References

Bloomberg, L.P. (2020) Company Classification. 2019. Accessed June 28, 2020.

Casanova, L.; Miroux, A. (2016). Emerging Market Multinationals Report: The China Surge. Emerging Markets Institute. S.C. Johnson School of Management. Cornell University. ISSN 2689-0127 https://ecommons.cornell.edu/handle/1813/66953

Casanova, L.; Miroux, A. (2017). Emerging Market Multinationals Report: Emerging Multinationals in a Changing World. Emerging Markets Institute. S.C. Johnson School of Management. Cornell University. ISSN 2689-0127 https://ecommons.cornell.edu/handle/1813/66953

Casanova, L.; Miroux, A. (2018). Emerging Market Multinationals Report: Emerging Markets Reshaping Globalization. Emerging Markets Institute. S.C. Johnson School of Management. Cornell University. ISSN 2689-0127 https://ecommons.cornell.edu/handle/1813/66953

Casanova, L.; Miroux, A. 2019a. *Emerging Markets Report 2019. Building Constructive Engagement*. 8 November 2019. ISBN-13: 978-1-7328042-3-4. . ISSN 2689-0127 https://ecommons.cornell.edu/handle/1813/66953

Casanova, L.; Miroux, A. 2019b. *The Era of Chinese Multinationals: How Chinese Companies Are Conquering the World.* Academic Press. Elsevier. http://bit.ly/bookchina **Paperback ISBN:** 9780128168578 **eBook ISBN:** 9780128170601 DOI https://doi.org/10.1016/C2018-0-01595-9

Casanova, L. and A. Miroux. 2019c. *China's international investments facing policy headwinds*. Chapter 1 in OECD EMnet (2019), "Business Insights on Emerging Markets 2019", OECD Emerging Markets Network, OECD Development Centre, Paris, http://www.oecd.org/dev/BI_2019.pdf

Cuervo-Cazurra, A. (2012), "Extending theory by analyzing developing country multinational companies: Solving the Goldilocks debate", Global Strategy Journal, Vol. 2/3, Strategic Management Society, Chicago, pp. 153-167.

Cuervo-Cazurra, A. and R. Ramamurti (eds.) (2015), Understanding Multinationals from Emerging Markets, Cambridge University Press, Cambridge.

Dunning, J.H. (2005), "The evolving world scenario "in S. Passow and M. Runnbeck (eds.), in What's Next? Strategic Views on Foreign Direct Investment, Invest in Sweden Agency, Stockholm, pp. 12-17.

ECLAC (2020), Foreign Direct Investment in Latin America and the Caribbean 2020, United Nations Economic Commission for Latin America and the Caribbean, Santiago de Chile.

Fortune 500 Directory website, http://fortune.com/fortune500/ (accessed August 2020).

Fleury, A. and Fleury, M.T. L. (2012), Brazilian Multinationals: Competences for Internationalization, Cambridge University Press, Cambridge.

Guillén, M.F. and E. García-Canal (2009), "The American Model of the Multinational Firm and the 'New' Multinationals from Emerging Economies", Academy of Management Perspectives, Vol. 23/2, Briarcliff Manor, NY, pp. 23-35, www-management.wharton.upenn.edu/guillen/PDF-Documents/New_MNEs_Acad_Mgmt_Perspectives-2009.pdf.

Li Sun, S. (2009). Internationalization strategy of MNEs from emerging economies: The case of Huawei. Multinational Business Review, 17(2), 129-156.

OECD Development Centre. (2017). BUSINESS INSIGHTS ON EMERGING MARKETS 2017. 13-27.

Standard &Poor's. Capital IQ. Database. Accessed through Johnson Library. Cornell University. Accessed October 2020

Statista. "Market share of washing machine brands among consumers in the United States, as of May 2017". Alexander Kunst, Published September 3, 2019

UNCTAD (2016), "FDI Recovery Is Unexpectedly Strong, but Lacks Productive Impact", Global Investment Trends Monitor No. 22, United Nations Conference on Trade and Development, 20 January, http://unctad.org/en/PublicationsLibrary/webdiaeia2016d1_en.pdf.

UNCTAD (2015b), UNCTADStats, United Nations Conference on Trade and Development, http://unctadstat.unctad.org/EN/Index.html (accessed 15 December 2015).

UNCTAD (2006), "World Investment Report. FDI from developing and transition economies; Implications for development", United Nations Conference on Trade and Development, Geneva.

Appendix 1: Notes on Methodology regarding Price Comparison

Regarding brands, we choose those from firms with the largest market share in that country or for that product globally.

When performing the price comparison across the same country for electronic goods (smartphones, desktops, laptops), we referred to the manufacturers' websites to find these prices. Where manufacturers did not display retail prices on their websites, we used Amazon (www.amazon.com) as a source of information. When using Amazon.com as a source for price comparison, we exclusively sought prices for goods sold by manufacturers through Amazon.com instead of prices for goods sold by third-party vendors.

When seeking prices in international markets, we referred to the manufacturer's website for that country, for instance for the UK market we used *apple.co.uk*, not *apple.com*. Regarding price comparison for white goods in the U.S. market like washing machine, we compared goods of the same power, capacity, or size—whichever of these metrics is most relevant to their purpose.

Concerning the price comparison graphs, we used the same categorization for different electronics as in previous EMI reports (Casanova and Miroux 2018 and 2019). For instance, for computers and laptops: gaming, home, and business. Also, these categories are defined by the manufacturer. Home computers are not always designated as so. They can be designated as standard or everyday use computers. The primary characteristic we used to designate home computers was whether the device operated on the latest Windows Home system.

While there are many premium high-powered business computers on the market, we chose to focus on desktops/laptops of comparable high processing power across brands in the price comparison. We focused on non-customizable desktops which could be bought off the shelf, or base models of customizable desktops, which could also be bought off the shelf.

For price comparison and market share, the data comes from Bloomberg Terminal or Statista, which seem to be the most reliable, credible, and widely accepted. The advantage of using data from Statista is that this database consolidates information from various sources, vetted by the organization.

Appendix 2: Boxes on Emerging Multinationals

Ping An Insurance (Group) Company of China, Ltd.

The largest insurance in Asia

Ping An Insurance Company of China, Ltd positioned itself at the 29th place in the Fortune 500 rank in 2019. As one of the biggest insurance companies worldwide, it provides financial products and services, which ranges from insurance and banking to asset management and fintech and healthtech businesses. On the frontstage, Ping An is an insurance company with over 400,000 employees and 200 million customers, offering services on segments such as: Life and Health, Property and Casualty, Banking, Trust, Securities, Other Asset Management, Technology, among others.

Highlights and Developments: On the backstage, they work as a technology and data-driven company. Their large portfolio of customers allows Ping An Insurance a constant feed for their A.I. algorithms and Big Data processes, creating unique metrics for risk assessment. One example of these technological implementations is their smartphone app, which allows the submission of claims with a photo of the vehicle damage and takes only three minutes for Ping An to answer with a repair estimate, that if accepted by the client, would be transferred immediately to the client's account. This is only possible because they match the photo with a database of 25 million parts used by 60,000 auto makes and models, analyzing if the damage may be fixed or if a replacement must take place, so the system could calculate the cost of parts and labor, with more than 140,000 garages. This process is only one, in the many data-driven services that Ping An has, which integrates data science, artificial intelligence and in some cases mobile payments.

International Presence: Ping An has expanded to several countries through its subsidiaries. They have Headquarters in countries such as mainland China, Hong Kong, Cayman Islands and Japan. They also have reached markets in several more countries: Singapore, Thailand, Indonesia and South Korea, to name some.

Awards and Recognition: Ping An have ranked in the Fortune Global 500 list for 10 years now and is 4th within the Fortune China 500 list. The insurance company has also stood out in the corporate social arena, receiving awards such as the International Carbon-Value Award 2019 within the frame of the World Economic and Environmental Conference and the Annual Sustainable Development and Best Insurance Company Award for Responsible Investment by Sina Finance in 2019. Regarding sustainability, Ping An was one of the two Chinese companies selected for the Dow Jones Sustainability Emerging Markets Index 2019.

中国平安
PING AN
保险 · 银行 · 投资

Fortune Global 500 2019: 29th

Revenue (2019):
USD 177,903.00 million

Assets (2019):
USD 1,180,963.20 million

Net Profit (2019):
USD 21,457.60 million

HQ: Shenzhen, China

Foundation year: 1988

Employees: 400,000

Ownership: Publicly listed

Industry: Financials, Insurance

Source: EMI Research team based on data and information from Capital IQ, 2019 Fortune Global 500, Ping An's Castle Made of Data (Fortune's article) and Insurance Business Magazine accessed by July 2020.

PTT PCL

PTT Public Company Limited, shortly known as PTT, was founded in 1978 concurrently in the period of petroleum shortages crisis. It engages in different processes of the energy sector, primarily in petroleum and natural gas, as well as development of technology and engineering.

In terms of petroleum, they engage on the process of exploration in Brazil, Mexico, Canada, Mozambique, United Arab Emirates and Australia; production in Algeria, Malaysia, Myanmar, Vietnam, and Indonesia; and, finally, petroleum product trading. In terms of natural gas, they engage in supply and distribution, gas separation, natural gas transmission systems and owns a service of natural gas for vehicles and compressed natural gas. Finally, in terms of technology and engineering, it held and innovation institute that woks on R&D with a focus on technology and digital transformation; and they also have engineering and project management on Thailand.

Recent Developments: To promote the way towards Thailand 4.0 policy, PTT is managing the project Wangchan Valley. A project made in a partnership with the Ministry of Higher Education, Science, Research and Innovation and the National Science and Technology Development Agency, which consists of an ecosystem that brings together education, innovation, and community, designed as a smart natural innovation platform.

International Presence: Nowadays it has international presence in every continent. Its biggest international operations are in Indonesia with 37 subsidiaries and Cayman Islands with 34. It also operates in Singapore, Hong Kong S.A.R. Australia, Netherlands, United Kingdom, Canada, Brazil, Panama, Cyprus, Mozambique, Cambodia, The Bahamas, United States of America, Kenya, Madagascar, Portugal, United Arab Emirates, Laos, Myanmar, Mexico, Oman and Mauritius.

Awards and Recognition: PTT have been for 16 years on the Forbes Global 500, ranked in 2019 in the 130th place. In the national SET awards of 2019, they won the "Best Investor Relations Award" and also were recognized as the "Top Employer 2020 – Thailand" for the second consecutive year by the Top Employer Institute. In terms of sustainability, PTT won the "Best Sustainable Award" in the same SET awards of 2019, were recognized in the Dow Jones Sustainability Index and ranked as a UN Global Compact LEAD company.

Also, the PTT Innovation Institute have made several developments that have some awards. The most recent ones were in 2019 in the International Exhibition of Inventions of Geneva, it won gold medal for their "PIMMS" invention and in the Research Work Award a Commendable Level for the "Production of ethanol and butanol from clostridium from unconventional carbon source."

Fortune Global 500 2019: 130th

Revenue (2019):
USD 74,585.5 million

Assets (2019):
USD 83,479.7 million

Net Profit (2019):
USD 3,123.2 million

HQ: Bangkok, Thailand

Foundation year: 1978

Employees: 10,630

Ownership: Publicly Listed Company

Industry: Petroleum Refining

Source: EMI Research team based on data and information from Capital IQ, 2019 Fortune Global 500, Orbis and PTT site accessed by August 2020.

Banco Bradesco

Bank

Banco Bradesco, in cooperation with its subsidiaries, provides products and services on banking and finance for individuals, corporates and businesses, working on two segments, banking and insurance. This way, they offer checking and savings accounts, demand, time and interbank deposits, mutual funds, foreign exchange, among others. From 2018 to 2019 Bradesco's loans increased 13,8%, achieving operations of USD147,190 million. According to S&P Global, Banco Bradesco ranks (in terms of assets) as the third biggest bank in Brazil and Latin America in Abril 2020, with assets of USD 345,21 billion.

Recent Developments: Banco Bradesco have invested in innovation on different product and services lines. More recently, they established an alliance with OLX (the global online marketplace) to give a 100% digital financing option for property credit. This model would digitalize all the process, from the simulations of risks to the proposal of the credit, with a certified security of personal information. Additionally, the process facilitates the sending and review of documents, leading to a calculated increase of 20% of property credits per month for the company.

Credit Rating: The bank has a short-term credit rating of B and a long-term credit rating of BB- assigned by S&P Global In the classification made by Fitch, they also have a B on short-term credit, but a BB on long-term.

International Presence: Banco Bradesco works on 9 countries around American Continent, Europe, and Asia. It has a major presence on the first one, working on Argentina, Mexico, Colombia, and United States. It also has subsidiaries in Luxembourg, Hong Kong S.A.R., United Kingdom and Portugal.

Awards and Recognition: Banco Bradesco is listed in the Dow Jones Sustainability World Index, Dow Jones Sustainability Emerging Market Index, and the United Nations Global Compact. Also, they were among the top four of financial services institutions in the *Guia Exame de Sustentabilidade* and received silver category for the second consecutive year in the Sustainability YearBook Award 2020. Apart from sustainability, they were ranked in the 221st position in the Fortune Global 500 of 2019 and as the market leader for user experience in the *Relátorio Bancário* awards.

Fortune Global 500 2019: 221st

Revenue (2019): USD 21,129.4 million

Assets (2019): USD 342,951.5 million

Net Profit (2019): USD 5,230.1 million

HQ: Osasco, Brazil

Foundation year: 1943

Employees: 97,329

Ownership: Publicly Listed

Industry: Banks: Commercial and savings

Source: EMI Research team based on data and information from Capital IQ, Fitch, Fortune Global 500, Banco Bradesco Integrated Report 2019 accessed by July 2020.

Banco do Brasil

Bank

Banco do Brasil is the oldest bank in Brazil with more than 200 years of operation. It focuses on providing banking products and services for individuals, companies, and public sectors. Its segments include banking, fund management, insurance, electronic payments, among others. Most of the bank's ownership is of the federal government (with 50% of shares), and the other's divided by domestic (23.9%) and foreign (25.6%) capital. In 2019, the total loans to customers portfolio reach USD149,913 million. According to S&P Global, Banco do Brasil is the second biggest bank in Brazil and Latin America, with assets of USD 365,51 billion as of April 2020.

Credit Rating: The bank has a short-term credit rating of B and a long-term credit rating of BB- assigned by S&P Global and Fitch.

International Presence: With their main operation in Brazil, it has expanded throughout American Continent, Europe, Asia, and Africa, having operations all over the world. After Brazil, it has a high presence in the Netherlands with 40 subsidiaries and United States of America with 10. The other countries in where it has operations are Uruguay, Argentina, Austria, Cayman Islands, United Kingdom, Singapore, Chile, Ireland, Bermuda, Peru, Panama, Colombia, Bolivia, Spain, Angola, and Nigeria, with a total of 18 countries and 88 international subsidiaries.

Awards and Recognition: Banco do Brasil is listed in the Dow Jones Sustainability World Index, Dow Jones Sustainability Emerging Market Index, and the United Nations Global Compact. Also, in 2019, Banco do Brasil received the award "Bank of the Year in Brazil" by the British magazine, The Banker; they were considered the most sustainable bank in the world, in the Global 100 ranking by Corporate Knights and ranked 269th in the Fortune Global 500 of the same year.

Regarding other type of awards and recognitions, Banco do Brasil have been ranked as the fifth most valuable company in Brazil by the Interbrand consultancy, best bank in Latinamerica in 2017 and positioned itself in the 319th place in the Brand Finance Global 500 of 2017.

Fortune Global 500 2019: 269th

Revenue (2019): USD 16,262.1 million

Assets (2019): USD 365,514.6 million

Net Profit (2019): USD 4,518.4 million

HQ: Brasília, Brazil

Foundation year: 1808

Employees: 92,757

Ownership: Publicly Listed and mainly state owned

Industry: Banks: Commercial and savings

Source: EMI Research team based on data and information from Capital IQ, Fitch, Fortune Global 500, Banco do Brasil Consolidated Financial Statement of 2019 accessed by July 2020.

Figure 1.18. Top ten companies across different industries in the Fortune Global 500 in 2010 and 2020.

Banks: Commercial and Savings		Motor Vehicles and Parts		Petroleum Refining	
2010	2020	2010	2020	2010	2020
Company	Company	Company	Company	Company	Company
12. ING Group	24. Industrial & Commercial Bank of China	5. Toyota Motor Corporation	7. Volkswagen	2. Royal Dutch Shell plc	2. Sinopec Group
15. Bank of America Corporation	30. China Construction Bank	16. Volkswagen AG	10. Toyota Motor	3. Exxon Mobil Corporation	4. China National Petroleum
18. BNP Paribas	35. Agricultural Bank of China	23. Ford Motor Company	20. Daimler	4. BP p.l.c.	5. Royal Dutch Shell
25. J.P. Morgan Chase & Co.	38. JPMorgan Chase	30. Daimler AG	31. Ford Motor	7. China Petrochemical Corp.	8. BP
33. Citigroup, Inc.	43. Bank of China	38. General Motors Corporation	39. Honda Motor	10. China National Petroleum Corporation	11. Exxon Mobil
36. Crédit Agricole	58. Bank of America	51. Honda Motor Co., Ltd.	40. General Motors	11. Chevron Corporation	25. Total
37. Banco Santander S.A.	67. Crédit Agricole	63. Nissan Motor Co., Ltd.	52. SAIC Motor	14. Total S.A.	36. Chevron
39. HSBC Holdings plc	69. Wells Fargo	78. Hyundai Motor Company	56. BMW Group	17. ConocoPhillips	48. Marathon Petroleum
42. Lloyds Banking Group plc	70. Citigroup	82. Bayerische Motoren Werke Aktiengesellschaft	83. Nissan Motor	24. ENI S.p.A.	57. Lukoil
46. Wells Fargo & Company	73. HSBC Holdings	85. Fiat S.p.A.	84. Hyundai Motor	54. Petrobras	61. Phillips 66

Insurance: Life, Health (stock)		Mining, Crude-Oil Production		Trading	
2010	2020	2010	2020	2010	2020
Company	Company	Company	Company	Company	Company
6. Japan Post Holdings Co., Ltd.	21. Ping An Insurance	64. Petróleos Mexicanos	6. Saudi Aramco	146. Mitsubishi Corporation	27. Trafigura Group
9. AXA	34. AXA	139. BHP Billiton Limited	17. Glencore	164. Mitsui & Co., Ltd.	42. Mitsubishi
19. Assicurazioni Generali SpA	45. China Life Insurance	173. Rio Tinto Group	64. China National Offshore Oil	195. Itochu Corporation	72. Itochu
53. Aviva,plc	46. Allianz	252. China National Offshore Oil Corp.	108. China Energy Investment	203. Sinochem Group	109. Sinochem Group
72. Prudential plc	60. Japan Post Holdings	356. Shenhua Group Corporation Limited of	133. Pemex	206. Marubeni Corporation	136. COFCO
90. Legal & General Group Plc	66. Assicurazioni Generali	363. Vale S.A.	190. Oil & Natural Gas	242. Noble Group Limited	172. Mitsui
95. CNP Assurances S.A.	80. Prudential	379. Xstrata plc	212. Shandong Energy Group	244. Sumitomo Corporation	173. Marubeni
103. AEGON N.V.	85. Legal & General Group	413. Oil and Natural Gas Corporation, Ltd.	261. BHP Group	312. COFCO, Limited	177. Toyota Tsusho
118. China Life Insurance(Group) Company	88. Aviva	421. Anglo American plc	265. Shaanxi Yanchang Petroleum (Group)		210. Wuchan Zhongda Group
174. MetLife, Inc.	124. Aegon		273. Shaanxi Coal & Chemical Industry		234. Xiamen C&D

Metals		Insurance: Property and Casualty (Stock)		Telecommunications	
2010	2020	2010	2020	2010	2020
Company	Company	Company	Company	Company	Company
99. ArcelorMittal	91. Amer International Group	20. Allianz AG	14. Berkshire Hathaway	21. AT&T Inc.	22. AT&T
123. ThyssenKrupp AG	92. China Minmetals	28. Berkshire Hathaway Inc.	112. People's Insurance Co. of China	31. Nippon Telegraph & Telephone Corporation	44. Verizon Communications
191. Nippon Steel Corporation	111. China Baowu Steel Group	41. American International Group,Inc.	135. Munich Re Group	35. Verizon Communications Inc.	62. Nippon Telegraph and Telephone
253. JFE Holdings, Inc.	146. ArcelorMittal	73. Munich Re Group	139. Zurich Insurance Group	59. Deutsche Telekom AG	63. Comcast
272. POSCO	194. POSCO	83. Zurich Financial Services	226. Tokio Marine Holdings	68. Telefónica	65. China Mobile Communications
276. Baosteel Group Corporation	198. Nippon Steel Corporation	186. Tokio Marine Holdings, Inc.	231. American International Group	77. China Mobile Communications	86. Deutsche Telekom
314. Hebei Iron & Steel Group Co., Ltd.	217. Aluminum Corp. of China	233. The Allstate Corporation	233. Swiss Re	80. Vodafone Group Plc	94. SoftBank Group
332. China Minmetals Corporation	218. HBIS Group	243. Liberty Mutual Holding Company Inc.	246. MS&AD Insurance Group Holdings	105. France Telecom	158. China Telecommunications
352. Sinosteel Corporation	248. ThyssenKrupp	251. Swiss Reinsurance Company	263. Allstate	181. Telecom Italia S.p.A.	201. Telefónica
381. Heraeus Holding GmbH	329. Tsingshan Holding Group	336. The Hartford Financial Services Group Inc.	271. Talanx	189. Vivendi	209. América Móvil

Source: EMI research team based on Fortune Global 500 data, https://fortune.com/global500, accessed August 2020.

Table 1.8. Top 20 companies from E20 countries by market capitalization, at the beginning of 2020, and August 2020.

	December 19					August 2020				
	Company	Country	Industry	Market Value ($bn)	Fortune Global 2019	Company	Country	Industry	Market Value ($bn)	Fortune Global 2020
1	Saudi Aramco	Saudi Arabia	Mining, Crude-Oil Production	1,879.3	6	Saudi Aramco	Saudi Arabia	Mining, Crude-Oil Production	1,894.8	6
2	Alibaba	China	Internet Services and Retailing	569.0	182	Alibaba	China	Internet Services and Retailing	776.6	132
3	Tencent Holdings	China	Internet Services and Retailing	457.9	237	Tencent Holdings	China	Internet Services and Retailing	651.1	197
4	Samsung Electronics	South Korea	Electronics, Electrical Equip.	320.8	15	Kweichow Moutai	China	Beverages	327.7	-
5	Industrial & Commercial Bank of China	China	Banks: Commercial and Savings	294.5	26	Samsung Electronics	South Korea	Electronics, Electrical Equip.	304.3	19
6	Ping An Insurance	China	Insurance: Life. Health	234.1	29	Industrial & Commercial Bank of China	China	Banks: Commercial and Savings	243.9	24
7	China Construction Bank	China	Banks: Commercial and Savings	217.7	31	Ping An Insurance	China	Insurance: Life. Health	199.7	21
8	Kweichow Moutai	China	Beverages	213.4	-	Meituan Dianping	China	Internet Services and Retailing	193.9	-
9	Agricultural Bank of China	China	Banks: Commercial and Savings	182.7	36	Reliance Industries	India	Petroleum Refining	179.9	96
10	China Mobile	China	Telecommunications	172.2	56	China Construction Bank	China	Banks: Commercial and Savings	179.0	30
11	Bank of China	China	Banks: Commercial and Savings	147.4	44	Agricultural Bank of China	China	Banks: Commercial and Savings	159.9	35
12	PetroChina	China	Petroleum Refining	146.2	4*	China Life Insurance	China	Insurance: Life, Health (stock)	150.9	45
13	China Merchants Bank	China	Banks: Commercial and Savings	134.9	188	China Mobile	China	Telecommunications	143.1	65
14	AIA Group	Hong Kong	Insurance: Life, Health (stock)	126.5	388	Wuliangye Yibin	China	Beverages	136.0	-
15	Reliance Industries	India	Petroleum Refining	126.1	106	China Merchants Bank	China	Banks: Commercial and Savings	135.5	189
16	China Life Insurance	China	Insurance: Life, Health (stock)	125.0	51	Bank of China	China	Banks: Commercial and Savings	128.4	43
17	Tata Consultancy Services	India	Information Technology Services	114.0	-	AIA Group	China	Insurance: Life, Health (stock)	124.2	250
18	Petrobras	Brazil	Petroleum Refining	101.3	74	JD.com	China	Internet Services and Retailing	122.7	102
19	HDFC Bank	India	Banks: Commercial and Savings	97.9	-	Tata Consultancy Services	India	Information Technology Services	115.3	-
20	Gazprom	Russia	Energy	94.2	42	PetroChina	China	Petroleum Refining	112.0	4*
21	Sberbank	Russia	Banks: Commercial and Savings	88.2	255	Pinduoduo	China	Internet Services and Retailing	106.5	-
22	Sinopec Group	China	Petroleum Refining	85.5	2	Foshan Haitian Flavouring and Food	China	Food Products	86.7	-
23	Itaú Unibanco Holding	Brazil	Banks: Commercial and Savings	83.7	191	HDFC Bank	India	Banks: Commercial and Savings	83.6	-
24	Rosneft Oil	Russia	Petroleum Refining	76.4	86	Naspers Limited	South Africa	Internet Services and Retailing	78.0	-
25	Meituan Dianping	China	Internet Services and Retailing	76.0	-	Jiangsu Hengrui Medicine	China	Pharmaceuticals	73.2	-
26	SABIC	Saudi Arabia	Chemicals	75.1	252	Xiaomi Corporation	China	Internet Services and Retailing	73.1	422
27	China National Offshore Oil	China	Mining, Crude-Oil Production	74.3	63	Midea Group	China	Electronics, Electrical Equip.	71.9	307
28	Wuliangye Yibin	China	Beverages	74.1	-	SABIC	Saudi Arabia	Chemicals	70.4	-
29	Naspers Limited	South Africa	Internet Services and Retailing	71.7	-	Contemporary Amperex Technology	China	Electrical Equipment	70.2	-
30	Banco Bradesco	Brazil	Banks: Commercial and Savings	70.2	221	Sinopec Group	China	Petroleum Refining	68.0	2

31	Postal Savings Bank of China	China	Mail, Package, and Freight Delivery	69.3	101*	NetEase	China	Entertainment	67.3	-
32	Vale	Brazil	Mining, Crude-Oil Production	68.0	336	Sberbank	Russia	Banks: Commercial and Savings	65.1	240
33	Lukoil	Russia	Petroleum Refining	64.9	50	Hong Kong Exchanges and Clearing	China	Capital Markets	63.8	-
34	Novatek	Russia	Utilities	61.1	-	China Yangtze Power	China	Utilities	62.0	-
35	Bank Central Asia	Indonesia	Banks: Commercial and Savings	59.3	-	Shenzhen Mindray Bio-Medical Electronics	China	Health Care: Medical Facilities	60.8	-
36	Industrial Bank	China	Banks: Commercial and Savings	59.1	213	China Tourism Group	China	Specialty Retailers	59.3	-
37	HDFC Limited	India	Diversified Financials	58.6	-	MercadoLibre	Argentina	Internet Services and Retailing	58.1	-
38	China Yangtze Power	China	Utilities	58.1	-	Gazprom	Russia	Energy	57.5	55
39	Midea Group	China	Electronics, Electrical Equip.	57.9	312	S.F. Holding	China	Air Freight and Logistics	56.5	-
40	Gree Electric Appliances	China	Electronics, Electrical Equip.	56.7	414	Luxshare Precision Industry	China	Electronics, Electrical Equip.	56.1	-
41	Bank of Communications	China	Banks: Commercial and Savings	56.6	150	Vale	Brazil	Mining, Crude-Oil Production	55.9	333
42	SK Hynix	South Korea	Semiconductors	55.7	335	CITIC Securities Company	China	Diversified Financials	54.9	126*
43	Jiangsu Hengrui Medicine	China	Pharmaceuticals	55.4	-	Postal Savings Bank of China	China	Mail, Package, and Freight Delivery	54.7	90*
44	Saudi Telecom	Saudi Arabia	Telecommunications	54.3	-	Infosys	India	Information Technology Services	53.6	-
45	América Móvil	Mexico	Telecommunications	52.8	196	Petrobras	Brazil	Petroleum Refining	52.7	120
46	Shanghai Pudong Development Bank	China	Banks: Commercial and Savings	52.1	216	Bank Central Asia	Indonesia	Banks: Commercial and Savings	52.6	-
47	China Vanke	China	Real estate	51.7	254	Saudi Telecom	Saudi Arabia	Telecommunications	51.2	-
48	JD.com	China	Internet Services and Retailing	51.4	139	Hangzhou Hikvision Digital Technology	China	Electronics, Electrical Equip.	51.1	-
49	China Energy Investment	China	Mining, Crude-Oil Production	50.3	107	China National Offshore Oil	China	Mining, Crude-Oil Production	50.8	64
50	ICICI Bank	India	Banks: Commercial and Savings	49.0	-	CSC Financial	China	Diversified Financials	50.6	-

* Based on the ultimate parent company rank

Source: EMI research team based on Capital IQ (www.capitaliq.com), accessed August 2020.

Chapter 2
Emerging Market Multinationals Firmly Setting Up as Global Investors

Lourdes Casanova - Gail and Rob Cañizares Director, Cornell University (Ithaca, United States)
Anne Miroux - Faculty Fellow, Cornell University (Ithaca, United States)

Executive Summary

This chapter tackles the global footprint of E20 firms. It hones in on the nature of their global investments, both Greenfield and Mergers and Acquisitions (M&A). The goal is to review the context and adopted strategies of the internationalization processes of these firms. We detail the countries and sectors attracting such investment and the reasons for these choices. We show the centrality of M&A activity for the internationalization of Chinese and Korean companies in the developed world and of greenfield investments in emerging markets.

2.1. Globalization of eMNCs

In the previous chapter, we outlined an overall view of E20 firms, now competing globally in high-valued added segments. Their growth has been the result of the growth and advancement in technology and research and development of their home countries economies and also the firms global expansion. This chapter will focus on their global expansion. First let's examine why companies go international. Based on the vast body of literature on motivations of firms for going global (Cuervo-Cazurra, 2012; Cuervo-Cazurra and Ramamurti, 2015; Dunning 1993 & 2005; Stan, Ciprian, Peng and Bruton, 2014) and the EMI reports research (Casanova and Miroux, 2016, 2017, 2018, 2019a and 2019b), companies enter overseas markets to gain:

- **Efficiency** - Firms improve their profitability by benefitting from lower labor and production costs (Chapter 1) by establishing units in emerging countries. The pursuit of efficiency has been a priority for multinationals and at the origin of efficient and complex multi-country value chains. Examples of this includes the automotive industry where auto parts are assembled in Mexico for U.S. car manufacturers or in Poland for German ones. Since 2016, In the textile industry, Bangladesh has become the third largest exporter of garments in the world. Fast fashion retailers increase their profitability by sourcing from low-labor cost countries like Bangladesh or Vietnam. The last 20 years have seen the growth of global value chains with final products crossing borders multiple times in search of efficiency.
- **New Growth** - Companies search for growth and new customers beyond their domestic markets. Hence, China and India, with large domestic markets and an appetite for novel products and services, have been the target of Johnson and Johnson among many other consumer good firms. Cosmetic firms like the French L'Oréal have a strong global presence.

- **Natural resources** - Firms based in countries in need of natural resources source their primary goods from resource rich nations or regions, securing their access to key commodities such as oil and gas by expanding globally. MinMetals', China's biggest metal trading firm, purchase of Oz Minerals, an Australian mining firm, in 2009 is an example of this. Sinopec or all oil majors also explore the world in search of new sources of this precious commodity.
- **Knowledge** - Companies glean knowledge through countries at the center of specific market developments, and by acquiring or establishing subsidiaries in key innovative regions. Technology firms squat the world searching for new patents, a particular know-how, or intangibles like brands. The acquisition of IBM's PC division in 2014 by the Chinese Lenovo is a good example of this strategy.

And yet, the drivers of globalization for companies vary (see Figure 2.1). While developed firms move internationally once they have developed their competitive advantage in their home markets, emerging multinationals go overseas to learn and improve both their business models and products/services as well as to grow into new markets. Latin American companies often seek more stable markets as they globalize to mitigate the frequent economic turbulence in their home markets. Some they call this phenomenon natural hedging as income in dollars or euros may compensate their revenues in local (devalued) currencies. Chinese firms go abroad for all of the above-mentioned reasons – to ensure access to natural resources, to acquire new knowledge and, more and more as indicated by the arrow to seek new markets. American or European firms look for efficiencies in low-cost markets and new markets. The 2020 COVID-19 pandemic make us all rethink what had been till then very efficient value chains. In view of the shortages of key ingredients for medicines or personal protective equipment like masks in March 2020, governments started to rethink global value chains which needed to be more resilient in the face of external shocks (Chapter 4) and questioned openly the search for efficiency. Also, products moving back and forth across borders increase the carbon footprint. One of the examples often mentioned is shrimp, which are fished in the North Sea, shipped to an emerging market to be peeled and to another one to be packaged and shipped back all over the world. Job losses were also brought to the fore. In search for efficiency manufacturing moved to China, Mexico or eastern Europe and the subsequent loss of jobs has brought difficulties for the working class in U.S. or Western Europe.

At the same time, a new 'technological' nationalism is growing and companies, primarily Chinese, expanding in the developed world are facing intense scrutiny. The ban of the Chinese Huawei in the U.S. because of fear of potentially using its 5G technology for spying is one of those examples. As the emerging world continues its push for globalization with the launch of the African Continental Free Trade Agreement (AfCFTA), or the Regional Comprehensive Economic Partnership (RCEP) among Asian-Pacific nations, we expect the west to increase the barriers to international investments (as seen in Chapter 4).

Figure 2.1. Motivations for internationalization by companies from different countries of origin.

Note: Arrows indicate that Chinese companies are seeking new markets and Western companies are also learning from emerging markets. Source: Authors based on analysis of the data and company interviews.

As for the internationalization process, we observe different stages. According to the data in previous research (Casanova 2009), **Latin American firms** proved less prone to internationalization. For those who ventured overseas, the path taken passed through natural markets, only to work their way to the United States or Europe to secure revenues in hard currencies. **Chinese firms**

typically follow a five-stage process for their international expansion (Casanova and Miroux 2019b). The first stage is tied to the growth to China's domestic market. Firms in U.S. or in China have leveraged home market advantage to gain scale while also competing against (and learning from) foreign companies. In the second stage, Chinese multinationals expand into their natural markets —their first step in internationalization. Natural Markets (Casanova 2009) are those which share the same language, geographical proximity, or common history. Within natural markets, information flows easier due to cultural similarities and networks are shared due to history and geographical proximities. In this phase Chinese companies often move into their natural markets in South East Asia. Similarly, U.S. companies move into their natural markets in Europe and North America and Brazilian companies move within South America.

Chinese firms leverage emerging markets in Latin America and Africa in their third stage of globalization. Emerging markets share similar population strata, and emerging Chinese multinationals have recognized that their products and services are well positioned to serve emerging markets, in particular the bottom of the pyramid (Prahalad, 2005). Chinese smartphone manufacturers like Oppo, Xiaomi and Huawei have opened Internet access for African and Latin American consumers who cannot afford more expensive options like Apple's iPhones. And Chinese firms continue to pursue growth in new markets and seek access to natural resources as they enter emerging markets around the world.

In the fourth stage of globalization, Chinese firms pursue acquisitions in more advanced markets in Europe and the United States, gaining desirable brands and technology assets. They place a premium on access to knowledge related to new technologies and innovation. Lenovo's acquisition of IBM's PC division or Haier's acquisition of GE Appliances are examples of globalization in this category. We are now entering a fifth stage, where we can see U.S. and European nations step up protection of their own markets. The pandemic has only accelerated this trend. Restrictions to investments are being imposed and companies are 'coming back home'. At the same time China is refocusing on Asia and its new Silk Road, or Belt and Road initiative (BRI), launched in 2013 to turbo charge global expansion. The signing at the end of 2020 of the free trade agreement, called the Regional Comprehensive Economic Partnership (RCEP), under China's leadership reinforces the country focus on Asia.

Table 2.1. Comparing internationalization paths for Latin America, China vs. the U.S.

Phase	Chinese companies	Latin American companies	U.S. companies
1	Domestic	Domestic	Domestic
2	**Natural Market: Asia and neighboring countries**	**Natural Market: Central America for Mexico and South America for Brazil**	**Europe (UK as springboard) and Natural Market: Canada and Mexico**
3	Latin America, Africa	U.S., Europe (Portugal/Spain springboard)	Latin America, Australia, China
4	U.S./Europe	Coming back to its natural Market	
5	BRI countries		'Coming back home'?

Source: Authors based on analyzed data, case studies and company interviews.

The main sources of international growth are Greenfield investments and Mergers and Acquisitions (M&A) transactions. We consider both as significant tools for acquiring knowledge, technical expertise, natural resources, customer base and talent, otherwise difficult and time-consuming to incubate domestically. We consider Greenfield first and then M&A data in the following sections.

2.2. Greenfield investments as a way to enable economic growth[11]

The OECD, the World Bank and the International Monetary Fund have been encouraging FDI as a source of economic growth and employment. Hence, emerging countries have competed against each other on who has the lowest labor costs and can offer the best fiscal incentives to attract multinationals. A case in point was the American Intel Corp. moving from Costa Rica to Malaysia, China, or Vietnam in 2014 as soon as these Asian countries offered Intel better conditions.

The data in Figure 2.2 supports the contention that E20 government policies focus their efforts on attracting foreign direct investment over support for overseas investments, with the exceptions of China and Korea (see later in this chapter). E20 countries are thus the destination of almost half of announced greenfield investments. However, E20 countries are the origin of only of about a quarter of all overseas investments.

[11] The help in this section of Daniel dos Anjos, Research leader at EMI is gratefully acknowledged.

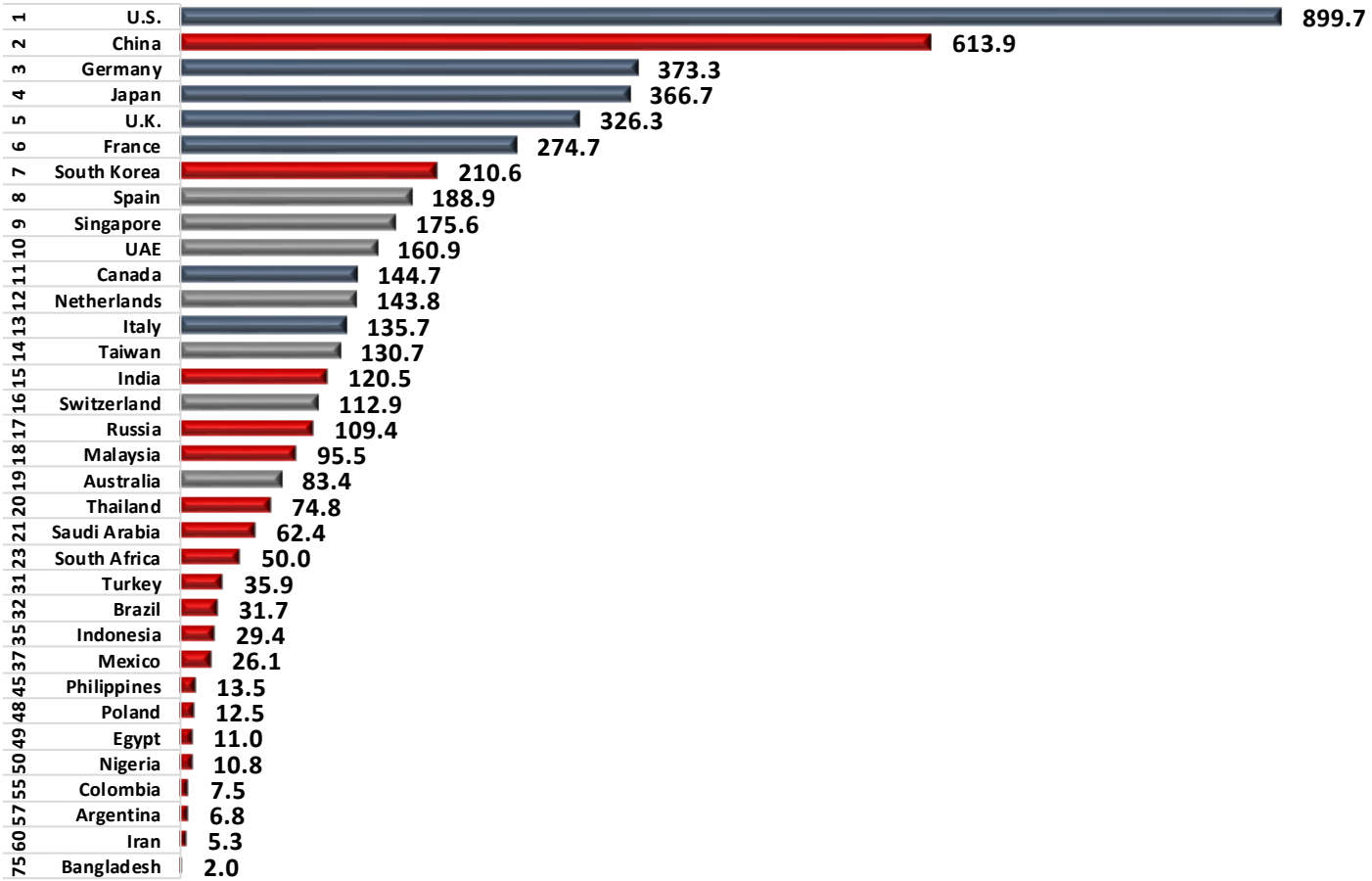
Figure 2.2. G7, E20 total value of announced overseas Greenfield projects in USD billion 2010 - 2019.

Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/), accessed in August 2020.

Looking at the last decade and following its policy of 'going global', China has been the second most important investor in Greenfield projects, after the United States, with 10.6% of total announced greenfield overseas investments (Figure 2.3). Seven countries, including two emerging ones: China and Korea, represent more than 50% of the total announced investments in this p eriod. South Korea is in number 7 with 3.6% and India is in number 15 with 2.1%. The rest of the E20 represent less than 2% individually: Russia is number 17 with 1.9%, Malaysia in number 18 with 1.7%, Thailand in number 20 with 1.3%, and Saudi Arabia in number 2 1 with 1.1%. The rest are small investors: South Africa in number 23 with 0.9%, Turkey in number 31 with 0.6% and Brazil in number 32 with only 0.5% which is analyzed below (see Figure 2.3).

If we consider the 20 biggest investors, E20 countries make up only 21.2% of the total investments (and China is a bit more than half), which is less than half of the 53.2% represented by developed countries. Still, emerging markets have become an i mportant source of global investments and six are among the twenty biggest investors: China, South Korea, India, Russia, Malaysia, and Thailand.

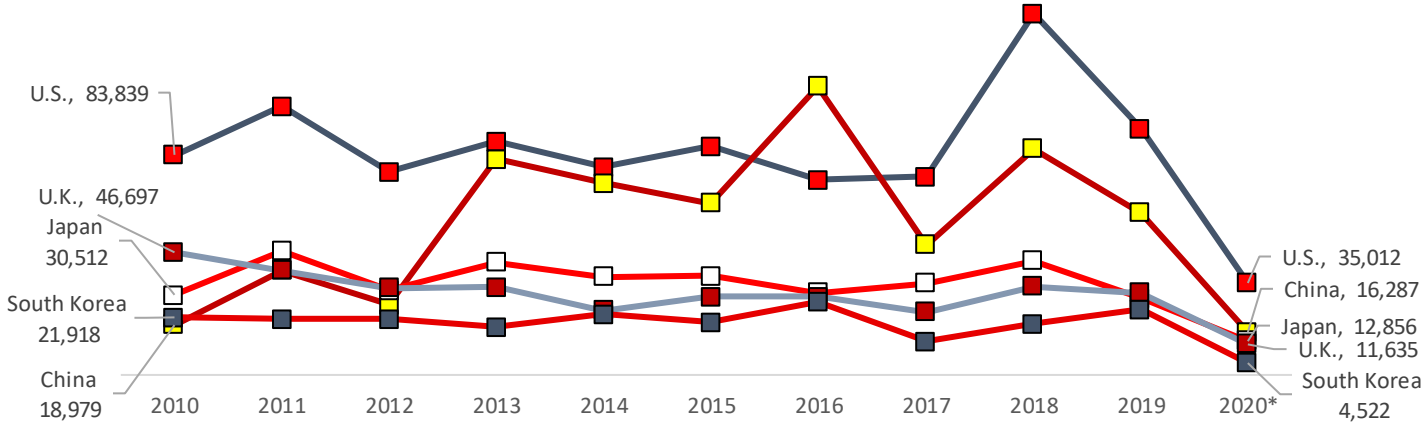
Figure 2.3. Main source countries of announced greenfield projects (USD billion), and E20 countries, 2010 - 2019.



Note: China values includes Hong Kong and Macau provinces as sources and excludes their projects with China. In red E20 countries and in blue G7.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) accessed in August 2020.

China registered an increase in its outward greenfield investments after 2013, topping the ranks in 2016, while other countries held steady. As mentioned above, for much of the decade, China stood out as the second largest greenfield investor. Even with the COVID shock, which has reduced greenfield investments significantly, China is second only to the United States (see Figure 2.4 and Figure 2.5).

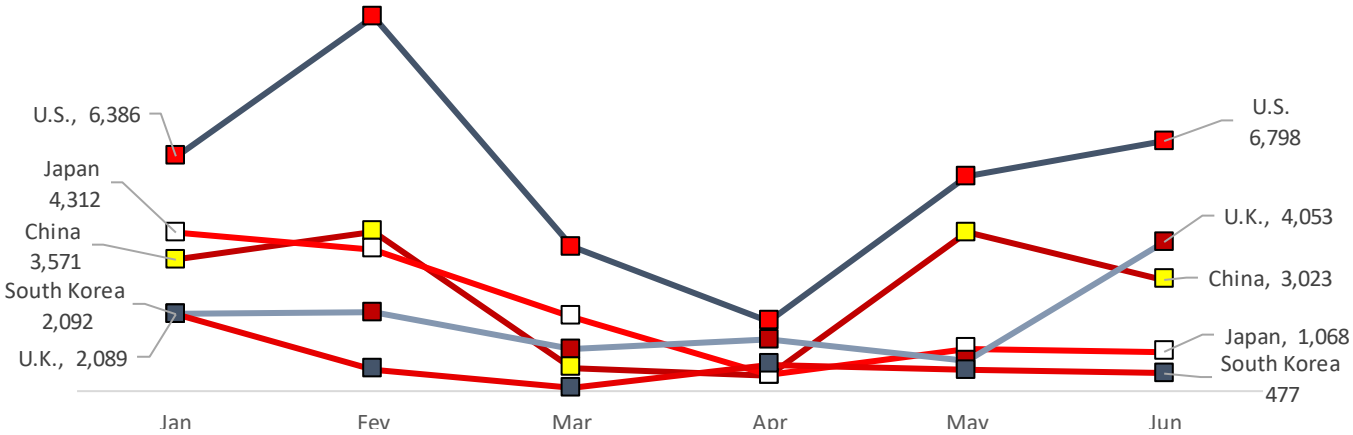
Figure 2.4. Total value of announced greenfield investments by the five biggest investor countries and South Korea 2010-2020 (USD billion).



*First semester only.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) accessed in August 2020.

Figure 2.5 shows the impact of COVID-19 more clearly. Investments collapsed worldwide in March and April and recovered in May-June, mainly for the United States, the United Kingdom and China, while Japan and South Korea struggled to rebound. In terms of both trade and investments, the IMF forecasts point to a major contraction (see Chapter 4). It is too early to say how the investment trends will evolve beyond this year.

Figure 2.5. Total value of announced greenfield investments by the five biggest investor countries and South Korea January-June 2020 (USD billion).



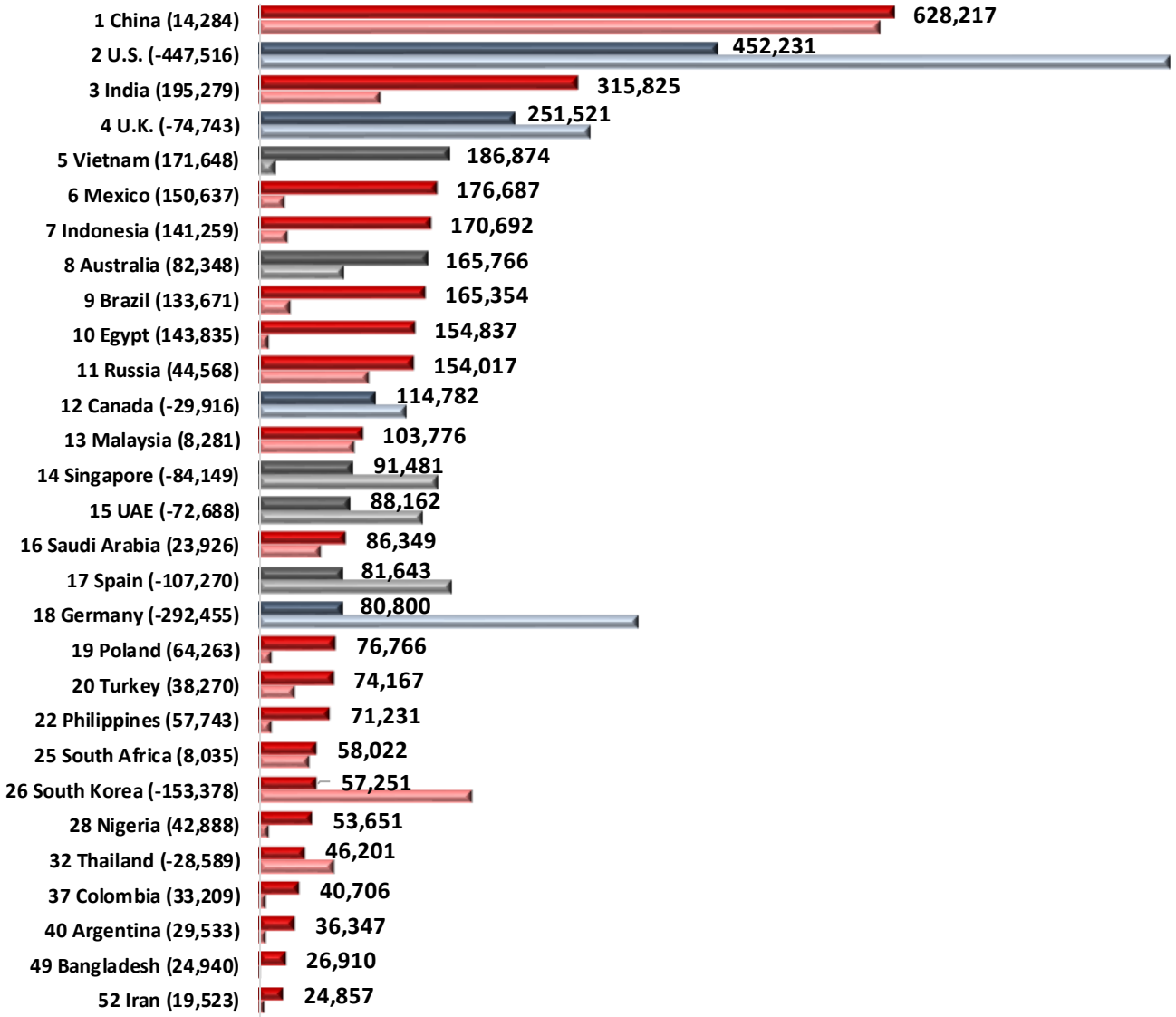
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) as of August 2020.

Based on destination, China is the largest recipient of greenfield projects overall. Latin America fared well as a recipient, thanks to active government policies to attract FDI. Vietnam has become an attractive destination because of low labor costs and high GDP growth, ranking fifth, after the U.K. Although Vietnam's GDP is still low compared to other emerging markets in the E20, it appears poised to join the E20 ranks in future reports (see Chapter 3).

In Figure 2.6 the balance is calculated as: inward greenfield investments minus outward greenfield investments . A negative number indicates that in the last decade the country has invested much more overseas than what it received in greenfield investments, and a positive one the opposite. As expected, the numbers show that all developed countries, but Australia invests more abroad than they receive and all emerging and developing countries the opposite. The exceptions are South Korea and Thailand because both are

more overseas oriented. Two emerging markets, China, and South Africa (although South Africa in much lower numbers), have quite a balanced situation. In the case of China, the country is a world leader in both inward and outward investment.

Figure 2.6. 20 main destination countries, and E20, of announced greenfield projects, 2010 – 2019, and balance between greenfield investments in the country and outside greenfield investments (parenthesis).



Note: Darker for FDI as destination, lighter for FDI as source. China values include Hong Kong and Macau as sources and excludes their projects with China. In red E20 countries and in blue G7.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) as of August 2020.

Moving to the micro level, twelve E20 firms stand out among the top 50 biggest greenfield investors (see Table 2.2). Asian and Russian firms have been actively going solo abroad. Chinese and South Korean firms together make up more than half of the E20 investments. The leader, Russia's State Atomic Energy Corporation, Rosatom, has invested in thirty-six different projects throughout the decade and is the third biggest overseas investor firm in the world. The largest Chinese investor, HKND, has underwritten the construction of a canal in Nicaragua similar to the Panama Canal, but the construction remains on hold. Besides the two above mentioned companies, other firms include China's Fortune Land Development and Shanghai Greenland Group; Korea's Samsung, POSCO, Hyundai, and LG; Indonesia's PT Sugih Energy; Malaysia's Petronas; and South Africa's SASOL. Latin American firms have not been very adventurous internationally over the last decade and none make the ranking of the 40 biggest greenfield overseas in vestor firms.

Table 2.2. Main source companies of greenfield FDI projects 2010 - 2019.

	Company	Country	Capital Invested (USD million)	No of Projects
1	Royal Dutch Shell Plc	Netherlands	53,516	68
2	Total	France	45,956	82
3	Rosatom	Russia	43,972	36
4	Hon Hai Precision Industry	Taiwan	40,263	83
5	Hong Kong Nicaragua Canal Development Investment (HKND Group)	China	40,000	1
6	Mitsubishi Corporation	Japan	34,225	253
7	CapitaLand	Singapore	33,883	95
8	Eni SpA (Eni)	Italy	32,273	44
9	Enel	Italy	31,061	170
10	Government of Singapore Investment Corporation (GIC)	Singapore	30,204	138
11	Mitsui & Co	Japan	29,805	106
12	Amazon.com	U.S.	27,368	396
13	China Fortune Land Development (CFLD)	China	26,405	5
14	Engie (GDF SUEZ) (Gaz de France)	France	25,877	93
15	Samsung	South Korea	25,293	181
16	Deutsche Post	Germany	25,086	422
17	Majid Al Futtaim Group (MAF Group)	UAE	24,501	18
18	State Oil Company of Azerbaijan Republic (SOCAR)	Azerbaijan	24,267	22
19	ExxonMobil	U.S.	24,047	27
20	PT Sugih Energy	Indonesia	24,000	1
21	Telefonica	Spain	23,949	126
22	Goodman Group	Australia	23,029	109
23	Pohang Iron & Steel (POSCO)	South Korea	21,973	68
24	Petronas	Malaysia	21,880	18
25	Hyundai Motor	South Korea	21,337	122
26	Volkswagen	Germany	21,015	167
27	BASF	Germany	20,594	115
28	Siemens	Germany	20,373	228
29	SASOL	South Africa	20,278	5
30	General Electric (GE)	U.S.	20,105	218
31	Sumitomo Group	Japan	18,171	150
32	Iberdrola	Spain	17,350	52
33	Shanghai Greenland Group	China	17,303	12
34	Saudi Aramco	Saudi Arabia	16,390	29
35	Toyota Motor	Japan	16,189	174
36	Marriott International	U.S.	16,148	127
37	Marubeni	Japan	15,679	51
38	Electricite de France (EDF)	France	15,648	74
39	RWE	Germany	15,550	53
40	LG	South Korea	15,216	102

*Projects from China, Hong Kong, and Macau to any of them are excluded.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) accessed in August 2020.

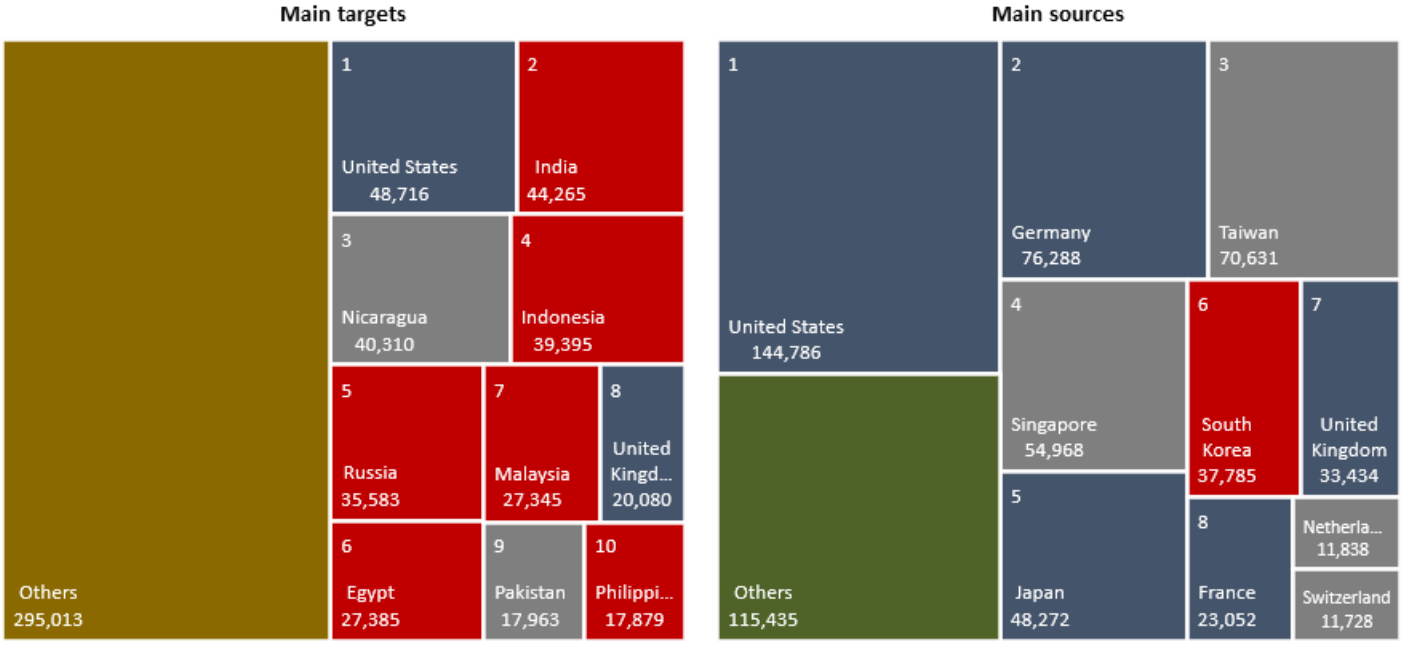
We turn next to a more detailed study of the two biggest greenfield investor countries: China and the United States both as destination and origin of greenfield investments, followed by India and Brazil. As the third most important E20 overseas greenfield investor, India is a clear choice to review. We also added in our review the biggest Latin American economy, Brazil, the 9th biggest world economy but only the 35th in terms of overseas investments.

A. China, becoming a global greenfield investment leader

In the middle of the U.S. – China trade war and within a more protectionist environment, the greenfield data show how intertwined both economies are. Both countries' primary origin of and destination for greenfield investments for each other. From 2010 to 2019, the United States was the primary destination of Chinese greenfield investments, followed closely by India. Unabated by the trade war, Chinese investments in the U.S. hit a record in 2018 but ebbed in 2019. Overall, investments are spread among many countries, but the bulk of Chinese investments are concentrated in emerging and developing economies. And post COVID we expect a similar pattern and more concentration in its natural market, Asia.

The Figure 2.7 shows the distribution of the main targets of Chinese greenfield investments, and main sources of the greenfield investments in China. It presents how distributed the targets of Chinese investments are in emerging countries, while the sources are more developed countries. As per number of projects, China's main destination is Germany, with a total investment of USD 4,443 million, with one third of its investments concentrated in Electronic components or Industrial equipment. However, in the U.S., Chinese investments were dispersed across many sectors. Egypt is the main African destination of Chinese greenfield, while the preferred Latin American destination is Brazil.

Figure 2.7. Main targets and sources of China's announced greenfield projects 2010 - 2019.



Note: Red for E20, blue for G7, gray for others.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) as of August 2020.

The sector China invests the most in is Construction, accounting for 27% (USD 167.5 bn) of the value of its overseas greenfield projects over the last decade alone. Five sectors amount to more than 70% of total greenfield investments from China.

Regarding firms (Table 2.3), construction and energy companies dominate the ranking. Yet, a technology firm Huawei, the biggest provider of telecom equipment in the world and number two worldwide by market share in smartphones, (Chapter 1) is number 6. This global presence of Huawei is impressive despite it being at the heart of the U.S.-China trade war. As mentioned in Chapter 1, Huawei market share in smartphones moved from number 3 to number 2 in 2020. Tencent, one of the biggest technological conglomerates and, together with Alibaba behind the biggest mobile payments push in China, is the third biggest company by value in overseas M&A. It is followed by a property development company, CK assets (Table 2.12).

Table 2.3. Largest Chinese investor firms, based on total value of announced overseas greenfield investment projects 2010 - 2019

#	Companies	Industry*	Million USD	Projects	Share	No of Countries	Main destination (% share)
1	Hong Kong Nicaragua Canal Development Investment (HKND Group)**	Construction	40,000	1	7%	1	Nicaragua (100%)
2	China Fortune Land Development (CFLD)	Construction	26,405	5	4%	5	Egypt (76%)
3	Shanghai Greenland Group	Construction	17,270	12	3%	9	U.S. (40%)
4	Sirius Holding	Energy	11,100	1	2%	1	Russia (100%)
5	Dalian Wanda Group	Construction	10,829	11	2%	6	France (30%)
6	Huawei Technologies	ICT & Electronics	10,094	213	2%	64	U.K. (19%)
7	China Communications Construction Company	Construction	10,062	24	2%	19	Malaysia (35%)
8	Shanghai Electric	Energy	9,041	15	1%	10	Turkey (38%)
9	China National Petroleum (CNPC)	Energy	8,890	23	1%	14	Mozambique (45%)
10	CITIC Group	Physical Sciences	7,834	26	1%	19	Algeria (77%)
11	Sany	Environmental Technology	6,985	19	1%	13	India (55%)
12	Zendai Group	Construction	6,400	1	1%	1	South Africa (100%)
13	China State Construction Engineering Corporation (CSCEC)	Construction	5,527	17	1%	11	Algeria (60%)

14 China Gezhouba (CGGC)	Energy	5,062	6	1%	6	Pakistan (69%)
15 Jiangsu Delong Nickel Industry	Physical Sciences	5,000	1	1%	1	Indonesia (100%)
16 China Petroleum and Chemical (Sinopec)	Energy	4,612	13	1%	9	Saudi Arabia (47%)
17 Hesteel Group (HBIS)	Industrial	4,474	2	1%	2	Philippines (98%)
18 Zhejiang Hengyi Group	Energy	4,302	2	1%	2	Brunei (100%)
19 Power Construction Corporation of China (PowerChina)	Energy	4,185	7	1%	6	Pakistan (51%)
20 Lee & Man Paper Manufacturing	Wood, Apparel & Related Products	4,131	7	1%	3	Vietnam (73%)

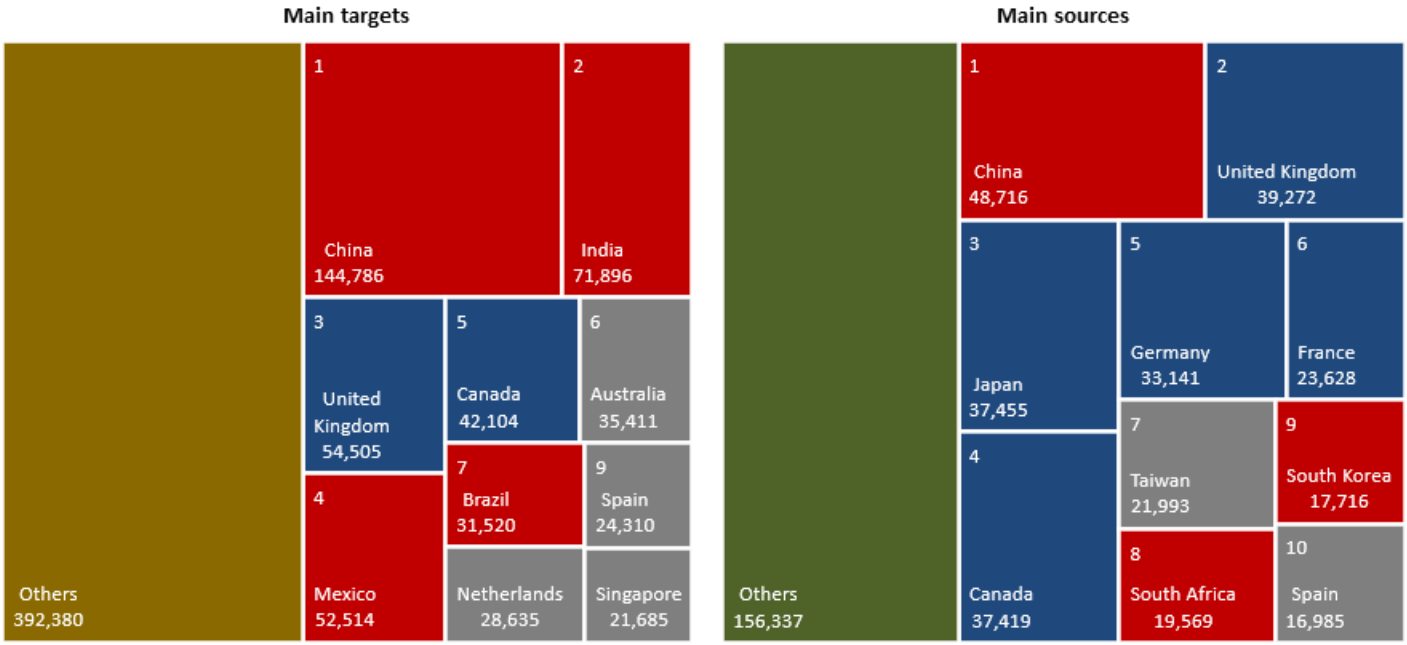
* Each project is classified by industry in the fDi markets database. The industry mentioned in the table is the one where a company has the largest number of projects.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) accessed in August 2020.

The top 10 countries make up more than 80% of the total amount invested in China. While the U.S. was the top investor in China since 2017, its investments slowed in 2019 and the slowdown has accelerated in 2020 during the COVID crisis .

B. United States, a global investor

As mentioned before, China and the US have served as prime investment destinations for each other. With China being the main destination of American overseas greenfield investments, 15% (Figure 2.8). the rest of American investments are quite widely distributed among other E20 countries, namely Vietnam, an emerging market about to make the ranks of the E20. While during the last decade China increased investments in Africa, notably in Egypt, US investment in Africa is much more limited.

Figure 2.8. Main targets and sources of the U.S.'s announced greenfield projects 2010 - 2019.



Note: Red for E20, blue for G7, gray for others.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) as of August 2020.

China still holds the top position as an investor in the United States, but its investments in 2019 plunged significantly in the wake of the trade tensions and increased scrutiny of Chinese investments. Now, six out of the Top 20 investor countries in th e United States belong to the E20. The U.S. industry with the highest number of greenfield projects overseas is ICT & Electronics, with 25% (USD 221.8 bn) of the total invested in the last decade (USD 899.7 bn) (Table 2.2). Greenfield investments from the United States to other countries are more broadly distributed across industries than those from China.

At the firm level, tourism (hotels) and technology (e.g., Amazon, Intel, IBM, Google, AT&T) companies dominate the ranking of the most aggressive international investors overall.

Table 2.4. Largest US investor firms by total value of announced greenfield investments, 2010 - 2019.

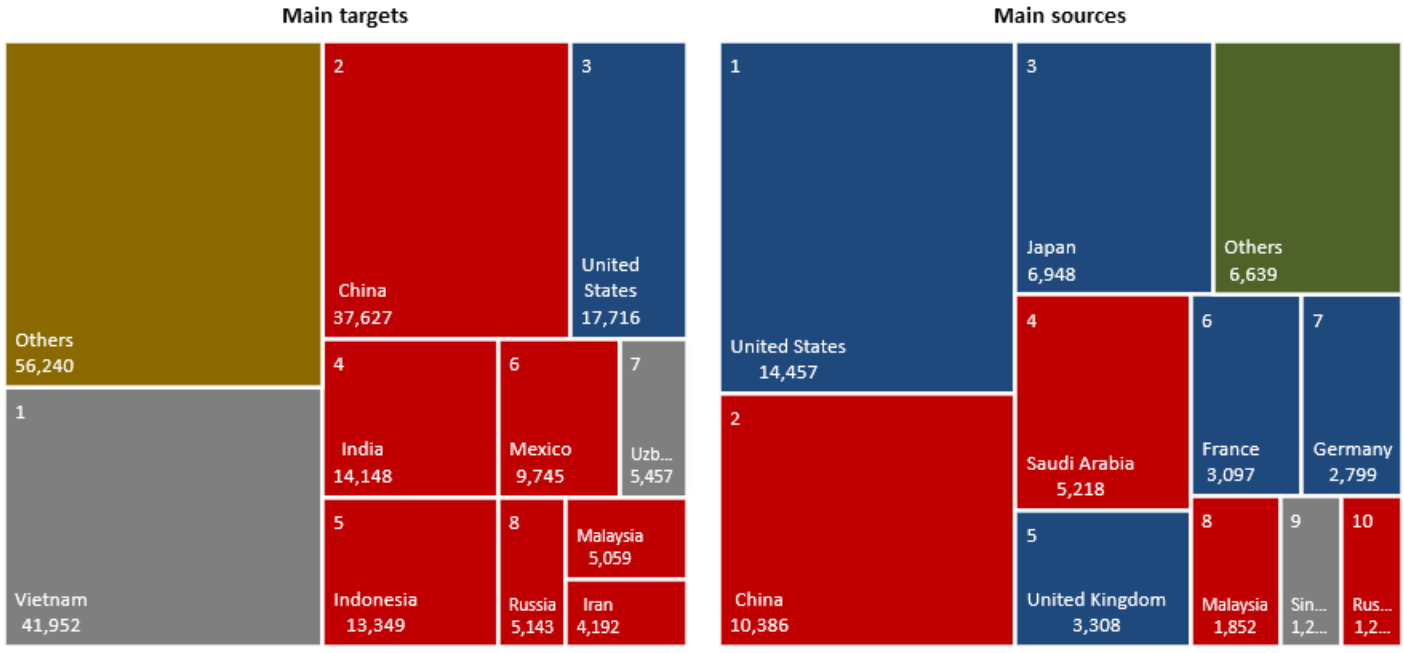
#	Companies	Industry*	Million USD	Projects	Share	No of Countries	Main destination (% share)
1	Amazon.com	Consumer Goods/Technology	27,368	396	3%	48	India (24%)
2	ExxonMobil	Physical Sciences	24,047	27	3%	20	China (71%)
3	General Electric (GE)	Energy	20,105	218	2%	58	Bangladesh (15%)
4	Marriott International	Tourism	16,148	127	2%	43	Japan (21%)
5	Cora Global Concepts	Tourism	13,500	1	2%	1	Spain (100%)
6	SunEdison Inc (MEMC Electronic Materials)	Environmental Technology	11,277	41	1%	15	India (57%)
7	Intel	ICT & Electronics	10,425	55	1%	23	Israel (49%)
8	Chevron Corporation	Energy	10,416	20	1%	16	Iraq (58%)
9	Panattoni	Transportation & Warehousing	10,055	89	1%	8	Poland (61%)
10	AES Corporation (AES)	Energy	9,960	26	1%	16	Vietnam (31%)
11	IBM	ICT & Electronics	9,493	285	1%	70	Mexico (16%)
12	Microsoft	ICT & Electronics	8,850	163	1%	48	Netherlands (31%)
13	CloudFlare	ICT & Electronics	8,304	80	1%	56	Nigeria (11%)
14	Ford	Transport Equipment	8,263	54	1%	21	China (44%)
15	ProLogis	Transportation & Warehousing	8,136	42	1%	14	U.K. (38%)
16	Tesla Motors	Transport Equipment	7,927	47	1%	22	China (74%)
17	Starwood Hotels & Resorts	Tourism	7,503	52	1%	15	China (72%)
18	Alphabet Inc	ICT & Electronics	7,088	71	1%	34	Singapore (20%)
19	AT&T	ICT & Electronics	6,534	17	1%	11	Mexico (80%)
20	Apache	Energy	6,414	6	1%	3	Australia (69%)
	U.S.		899,747	24,233	26%		

* Each project is classified by industry in the fDi markets database. The industry mentioned in the table is the one where a company has the largest number of projects.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) as of August 2020.

C. South Korea, supporting the global reach

Korea, like China, has been actively supporting the globalization of its national champions. Some of the most active international investors- Samsung, LG, Hyundai among others - have become renowned brands all over (Table 2.5). As per countries, fifty per cent of Korean greenfield investments has been directed to four countries: Vietnam, China, the United States, and India. Indonesia is a close 5th. The top 10 destinations comprise 73% of the total, and are largely South-South in nature, led by Vietnam. As regards developed countries, the U.S., the U.K., and Singapore, stand out among the targets. The United States topped the ranks among greenfield investors in South Korea, with a quarter of the total. China Japan, and Saudi Arabia follows as shown in Figure 2.9.

Figure 2.9. Main targets and sources of South Korea's greenfield projects 2010 - 2019.



Note: Red for E20, blue for G7, gray for others.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) as of August 2020.

Transport equipment leads the list in South Korean Greenfield overseas investment Projects, with 22% (USD 45.6 bn) of the total value during the past decade (USD 210.6 bn). As regards companies, technology firms top the pack with the conglomerate Samsung, a leader in smartphones (Chapter 1) and LG in number 4 (Table 2.5). Energy firms are also very active overseas investors.

Table 2.5. Largest Korean investor firms by total value of announced greenfield investments 2010 - 2019.

#	Companies	Industry*	Million USD	Projects	Share	No of Countries	Main destination (% share)
1	Samsung	ICT & Electronics	25,293	181	12%	64	China (37%)
2	Pohang Iron & Steel (POSCO)	Physical Sciences	21,973	68	10%	28	India (31%)
3	Hyundai Motor	Transport Equipment	21,337	122	10%	33	Mexico (26%)
4	LG	ICT & Electronics	15,216	102	7%	41	China (30%)
5	Korea Electric Power (KEPCO)	Energy	13,351	23	6%	16	South Africa (16%)
6	Lotte Group	Construction	11,244	46	5%	16	Indonesia (60%)
7	SK Holdings (SK Group)	Transport Equipment	10,490	32	5%	15	China (34%)
8	Korea Gas Corporation (KOGAS)	Energy	7,116	5	3%	4	Uzbekistan (57%)
9	Hanwha	Environmental Technology	6,695	44	3%	17	Vietnam (37%)
10	Taekwang Industrial	Energy	6,606	9	3%	4	Vietnam (73%)
11	Korea East-West Power (EWP)	Energy	3,800	3	2%	3	U.S. (47%)
12	Daewoo Engineering	Energy	3,444	3	2%	3	Vietnam (79%)
13	Korea National Oil (KNOC)	Energy	2,696	3	1%	3	U.K. (59%)
14	Hankook Technology Group (Hankook Tire Worldwide)	Transport Equipment	2,317	17	1%	13	China (42%)
15	OCI Company (DC Chemical)	Environmental Technology	1,973	15	1%	5	U.S. (53%)
16	Shinhan Financial	Financial Services	1,907	46	1%	12	Vietnam (46%)
17	Daewoo Shipbuilding & Marine Engineering	Energy	1,862	3	1%	3	Papua New Guinea (56%)
18	CJ Cheiljedang	Agribusiness	1,756	20	1%	9	China (39%)
19	SolarPark Korea	Environmental Technology	1,400	2	1%	1	Vietnam (100%)
20	Nexen Tire	Transport Equipment	1,326	5	1%	4	Czech Republic (97%)
	South Korea		210,629	1,879	77%		

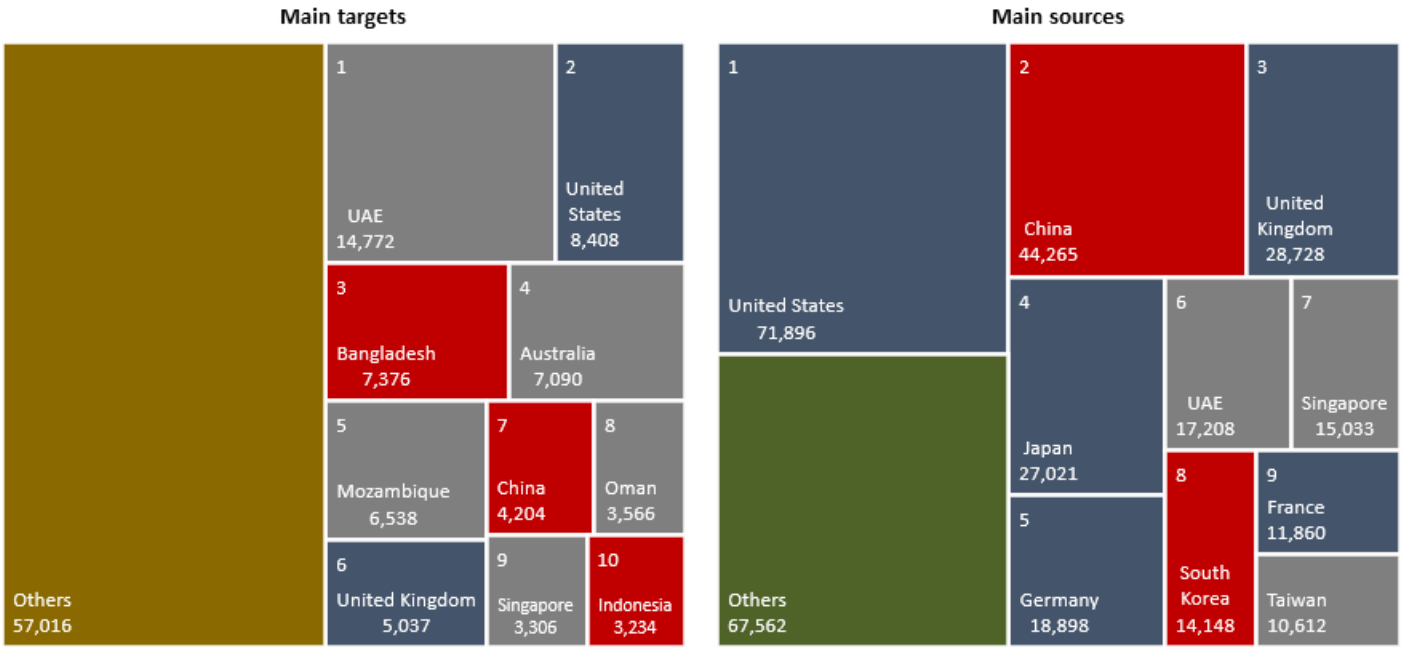
* Each project is classified by industry in the fDi markets database. The industry mentioned in the table is the one where a company has the largest number of projects.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) as of August 2020.

D. India, starting an international journey

As is the case of other emerging countries, overseas greenfield investments from India are largely directed to emerging markets and less so to developed countries. As shown in Figure 2.10, five destinations are high income economies U.S. UK, U.A.E., Australia and Singapore. India mirrors China in dispersing its investments across a wider map. As Figure 2.10 shows, the Top 10 targets made up nearly half of total investments.

The U.A.E is India's primary investment target. But it does not include a single Latin American nation. As main source of investments, U.S. tops the ranks followed, surprisingly by China, in spite of the political tensions between both countries. As a destination of greenfield investments, as well as the investor, Indians companies target African countries.

Figure 2.10. Main targets and sources of India's announced greenfield projects 2010 - 2019.



Note: Red for E20, blue for G7, gray for others.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) as of August 2020.

Both U.S. and China together made more than a third of the total invested in India in the last decade. Regarding industries, the highest investments from India cluster around energy, with 18% (USD 22.1 bn) of the total over the past decade (USD 120.5 bn). Regarding corporations, the big Tata conglomerate tops the rank of largest investors (Table 2.6) with the main destination being Vietnam. Energy and electronic firms are also active investors and some of the leading technology outsourcing companies like Infosys, HCL or Wipro have built a sizeable presence beyond India's borders.

Table 2.6. Largest Indian investor firms by total value of announced greenfield investments, 2010 - 2019.

#	Main companies in Projects	Industry*	Million USD	Projects	Share	No of Countries	Main destination (% share)
1	Tata Group	Transport Equipment	14,197	131	12%	46	Vietnam (14%)
2	Jindal Organisation (OP Jindal)	Energy	6,735	16	6%	10	Mozambique (58%)
3	Sobha (Sobha Developers)	Construction	5,498	10	5%	8	U.A.E. (79%)
4	Suzlon Energy	Environmental Technology	4,780	12	4%	11	Australia (94%)
5	Reliance ADA	Energy	3,726	8	3%	4	Bangladesh (67%)
6	Mahindra Group	Transport Equipment	3,646	88	3%	42	Canada (19%)
7	Essar Group	Energy	3,423	23	3%	15	Zimbabwe (88%)
8	Bharti Group	ICT & Electronics	2,608	24	2%	18	Nigeria (37%)
9	Infosys Technologies	ICT & Electronics	2,442	48	2%	18	U.S. (44%)
10	HCL Group	ICT & Electronics	2,440	35	2%	20	Singapore (46%)
11	Apar Industries	Industrial	2,159	1	2%	1	U.A.E. (100%)
12	Siva Group	Agribusiness	1,907	1	2%	1	Cameroon (100%)
13	Bharat Heavy Electricals (BHEL)	Energy	1,528	3	1%	3	Kazakhstan (65%)
14	NTPC Limited (National Thermal Power)	Energy	1,506	2	1%	2	Bangladesh (100%)
15	Rashtriya Chemicals & Fertilizers	Agribusiness	1,500	1	1%	1	Ghana (100%)
16	Apollo Tyres	Transport Equipment	1,487	14	1%	11	Thailand (34%)
17	Bharat Petroleum (BPCL)	Energy	1,409	2	1%	2	Mozambique (100%)
18	State Bank of India (SBI)	Financial Services	1,326	53	1%	22	Oman (22%)
19	Wipro	ICT & Electronics	1,322	39	1%	18	Saudi Arabia (45%)
20	Aditya Birla	Transport Equipment	1,282	24	1%	9	Turkey (39%)
	India		120,547	2,738	54%		

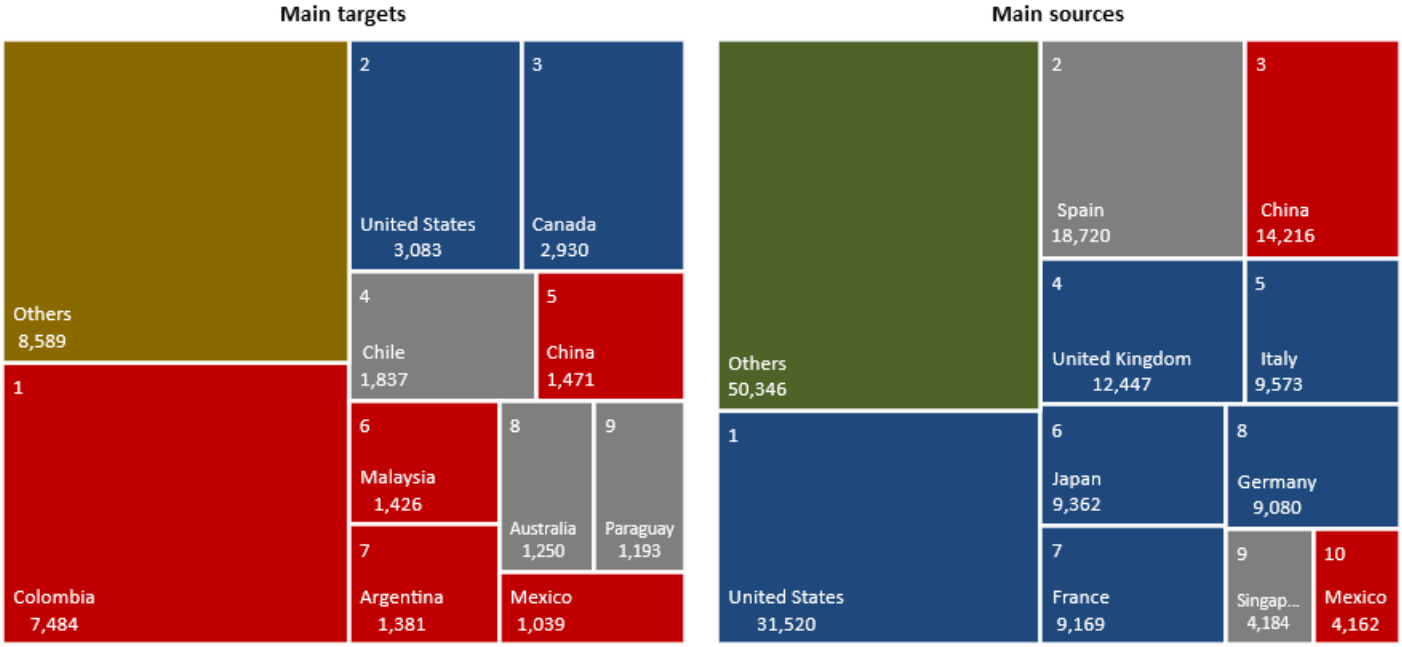
* Each project is classified by industry in the fDi markets database. The industry mentioned in the table is the one where a company has the largest number of projects.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) as of August 2020.

E. Brazil, Investing in Its Natural Market

Brazil is the third biggest E20 economy and one would expect an international push from such a large economy. However, this has not happened first because since 2014 its GDP growth has stalled to an average of 1.2% (Chapter 3) and also because Latin American countries have focused on attracting foreign direct investments (Casanova, Kassum 2014) more than going overseas. In spite of the fact that Brazil through its development bank, BNDES, adopted policies to encourage Brazilian firms to go global (Casa nova and Miroux 2018), those policies had a limited success.

Together, five markets account for more than half of total investments from Brazil (Figure 2.11). In fact, the Top 10 destinations account for 70%, indicating that Brazil concentrates its investments in fewer countries relative to the other countries covered above. The top destination is Colombia. Despite investing in a more selective cross-section of countries relative to others in the E20, Brazilian investments appear more diversified on a regional basis, straddling both developed and emerging countries among top destinations.

Figure 2.11. Main destination of Brazil's greenfield Projects 2010 - 2019.



Note: Red for E20, blue for G7, gray for others.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) as of August 2020.

Greenfield investments in Brazil come mainly from only a handful of countries, with a third of the total originating from three markets, the U.S., Spain, and China. All the G7 countries play an important role, with China, a late comer, in third position .

In terms of industry, from 2010 to 2019 Physical Sciences reigns highest, with 33% (USD 10.4 bn) of the total invested in this period (USD 31.7 bn). At a more detailed level, four firms: Vale, Hejoassu, EBX (now in bankruptcy) and the biggest Brazilian company, Petrobras, are responsible for more than half of the total international greenfield investments of Brazil. As th ese four firms concentrate the international might of the country, a crisis in just one of them, makes Brazilian overseas investments decrease significa ntly. The biggest iron ore mining company in the world, Vale, is a case in point. In February 2019, in Brazil's worst environmental disaster, the Brumadinho dam collapse, caused the death of at least 248 people. Given the repercussions of the tragedy, international expan sion is not a priority for Vale today. A similar story is true for Petrobras which is still engulfed by the consequences of the Lavajato corruption scandal and is rapidly selling all its international assets.

Table 2.7. Largest Brazilian investor firms by total value of announced greenfield investments, 2010 - 2019.

#	Main companies in Projects	Industry*	Million USD	Projects	Share	No of Countries	Main destination (% share)
1	Vale (Companhia Vale do Rio Doce)	Physical Sciences	6,583	10	21%	10	Canada (43%)
2	Hejoassu Administracao	Physical Sciences	4,671	3	15%	3	Colombia (86%)
3	EBX Group	Energy	3,272	7	10%	3	Colombia (87%)
4	Petrobras	Energy	1,756	5	6%	5	Portugal (30%)
5	GMR Empreendimentos e Participacoes	Environmental Technology	1,425	6	4%	3	Chile (72%)
6	Mover Participacoes (Camargo Correa)	Construction	1,132	7	4%	5	Angola (35%)
7	Odebrecht	Physical Sciences	909	12	3%	10	U.S. (74%)
8	ECB Group	Environmental Technology	800	1	3%	1	Paraguay (100%)
9	Gerdau	Industrial	780	9	2%	5	Mexico (69%)
10	Marcopolo	Transport Equipment	710	2	2%	2	China (87%)
11	Oi	ICT & Electronics	479	7	2%	3	Colombia (52%)
12	Centrais Eletricas Brasileira (Eletrobras)	Environmental Technology	414	3	1%	2	Uruguay (38%)
13	Softexpert Software	ICT & Electronics	405	3	1%	3	UK (95%)
14	BRF Brasil Foods	Agribusiness	387	6	1%	6	U.A.E. (31%)
15	Marfrig	Agribusiness	363	9	1%	3	China (91%)
16	Embraer (Embraer-Empresa Brasileira de Aeronautica)	Transport Equipment	317	10	1%	8	Netherlands (31%)
17	JBS	Agribusiness	289	6	1%	4	Mexico (51%)
18	WEG	ICT & Electronics	265	5	1%	4	China (85%)
19	Banco do Brasil	Financial Services	261	11	1%	5	Argentina (39%)
20	EMS S.A.	Life sciences	240	2	1%	2	U.S. (83%)
	Brazil		31,683	509	80%		

* Each project is classified by industry in the fDi markets database. The industry mentioned in the table is the one where a company has the largest number of projects.
Source: EMI Research team based on fDi Markets (https://www.fdimarkets.com/) accessed in August 2020.

Six E20 countries: China, South Korea, India, Russia, Malaysia, and Thailand are among the biggest investors in greenfield overseas projects worldwide. M&A is also a popular choice for the largest investors as we will see in the next section .

2.3. Going Global with Acquisitions[12]

Beyond greenfield, acquisitions are fundamental for consolidating a firm's international footprint. Through M&As, companies harness brands, talent, know-how, customers, and more. M&A acts as a key means for securing access and presence in multiple countries at once. As in previous reports, (Casanova and Miroux 2017-2018-2019) using Standard & Poor's Capital IQ data the EMI team has consolidated data on M&A (see methodology in Appendix 1). While, as stated above, six E20 countries are among the biggest greenfield investors, the presence of E20 countries among the biggest global acquirers is much less important compared to advanced economies. Among the 50 biggest M&A deals in the last decade (see Appendix 3) 12% originated from E20 countries: four from China (Syngenta, Bank of China, China National Bank and CK Hutchinson acquisitions), one from Brazil (Oi, telecom company that purchased Pharol) and another from South Korea (Hwaseung acquisition).

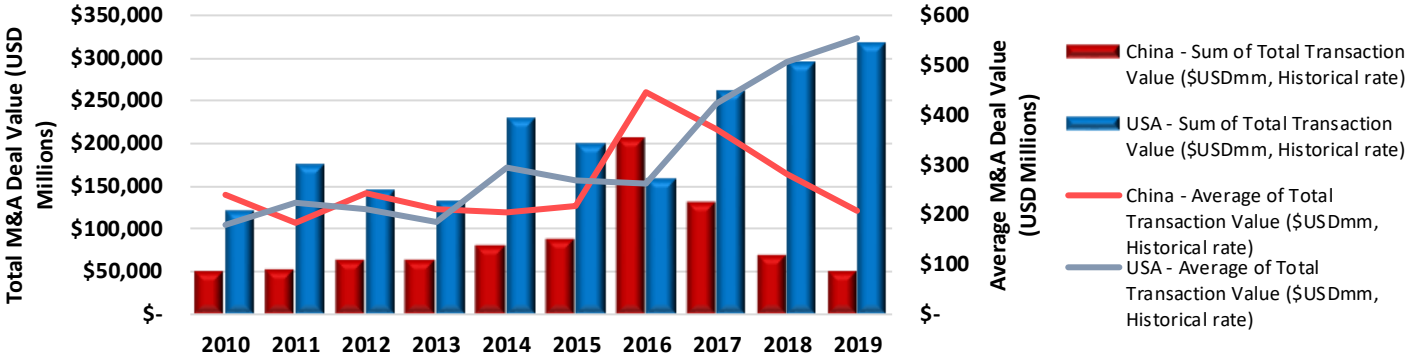
A. China, among the top international overseas acquirers

While the U.S. firms are, by far, the winners in overseas acquisitions, China has become a major player very rapidly. The pace peaked in 2016. That year, China's total deal value rose sharply to about USD 200 billion, more than twice the levels achieved in previous years (Figure 2.12). Its average deal value peaked at USD 446 million in 2016, but fell afterwards, reflecting the changes in the total value of Chinese outbound M&A activity

The total value of U.S. outbound M&A deals increased by 160% from 2010 to 2019, with a high of almost USD 319 bn in 2019. Meanwhile, their average value fluctuated between 2010 and 2016, with a steep rise of 554 million USD in 2019. With the exception of 2016, the United States has consistently shown a higher total outbound M&A value than China. Post-2016, the gap between the US-total outbound M&A value and China's has widened and China has returned to levels of the early 2010s. One could argue that, for China's outbound M&As, 2016 (and 2017) was the exception to an otherwise pattern of less than USD 100bn per year in total deal value.

[12] The help in this section of Vineetha Pachava, Cornell '22 and Research Assistant at EMI is gratefully acknowledged.

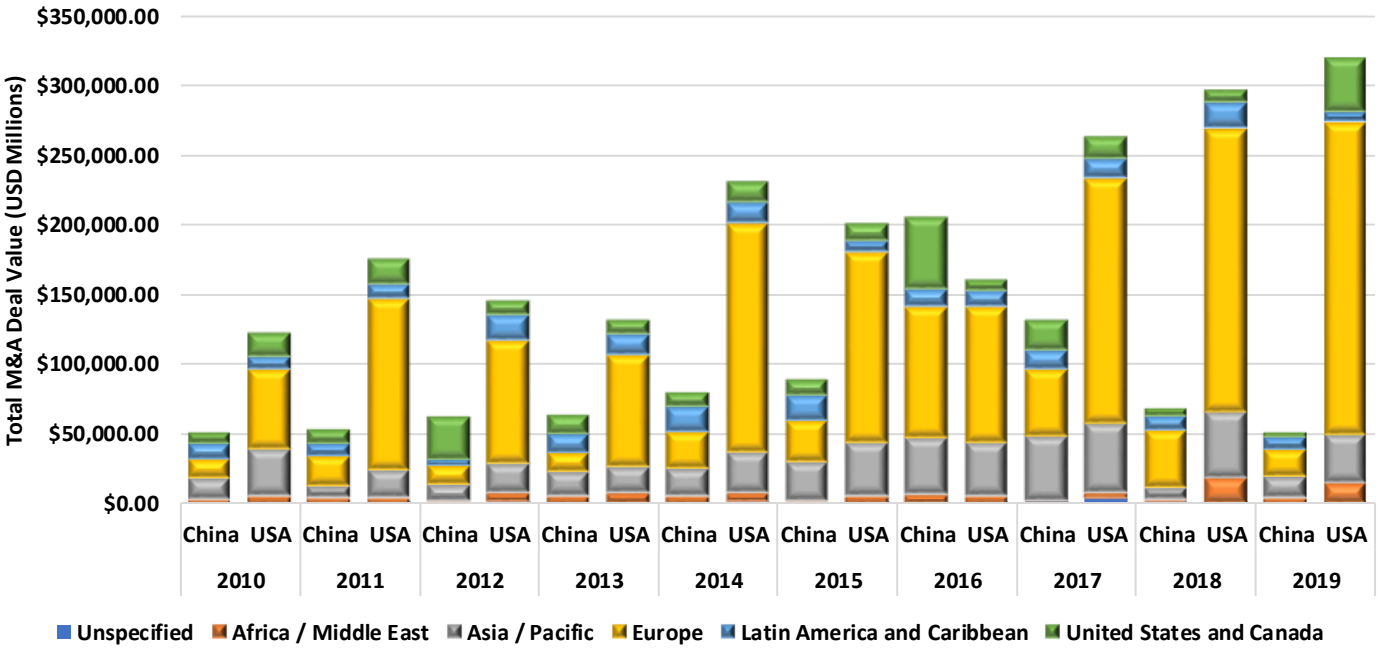
Figure 2.12. Total value of China and U.S. Outbound M&A Activity (2010-2019)



Source: EMI Research team based on Capital IQ, accessed 22-24 April 2020.

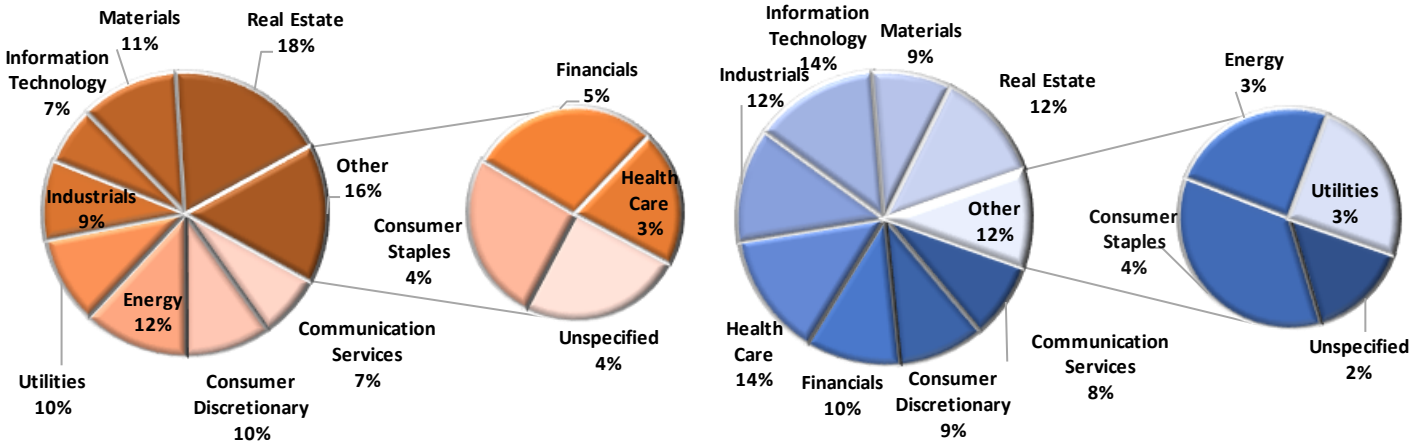
Until 2016, the bulk of total Chinese outbound M&A consistently targeted the European and Asia/Pacific regions. Since 2016, the shift toward Europe has increased. While the share of M&A towards Asia/Pacific increased from 2011 to 2015, it declined beginning in 2016, with small rebounds in 2018 and 2019 (Figure 2.13). Overall, Europe, the U.S./Canada the Asia/Pacific regions still are the three largest international destinations for Chinese outbound M&A. If we look at individual countries, U.S. has been the most important target in the last 10 years. Across regions, China has had a more even distribution of outbound M&As, with Europe the most important target. Overall, the developed world is the prime destination of Chinese M&As, while in greenfield, even if U.S. is the main target, emerging markets remain China's main focus. An overwhelming share of M&As by US firms is in Europe. Both China and the United States have marginal amounts of acquisitions directed to Africa, the Middle East, Latin America, and the Caribbean.

Figure 2.13. China and USA Outbound M&A by Region (2010-2019)



Note: Excludes cancelled deals. Data for China includes data for Macau and Hong Kong.
Source: EMI Research team based on Capital IQ, accessed 22-24 April 2020.

Figure 2.14. China (left) and the U.S. (right) Outbound M&A by Sector (2010-2019)



Note: Based on transaction value. Excludes cancelled deals. Data for China includes data for Macau and Hong Kong.
Source: EMI Research team based on Capital IQ, accessed 22 April 2020.

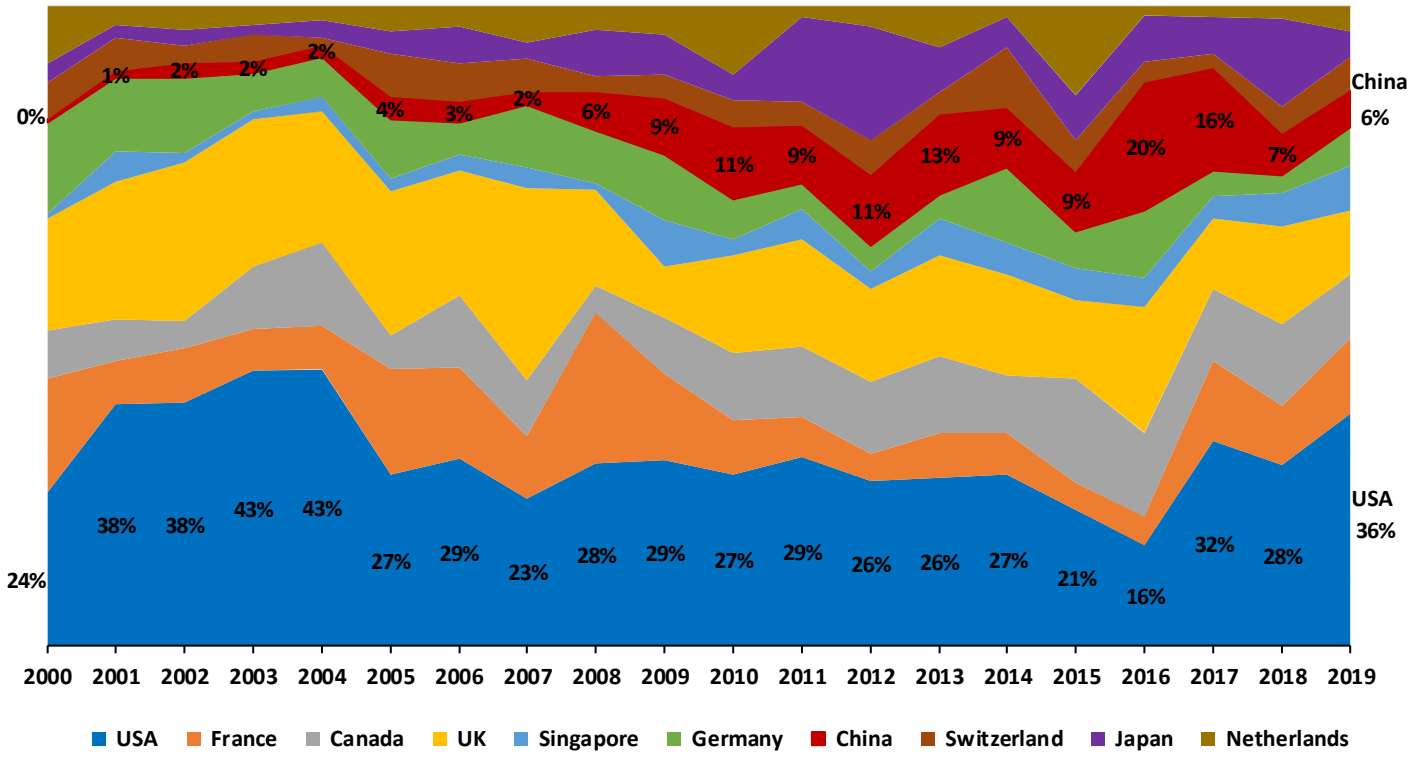
With regards to sector allocation (Figure 2.14), from 2010 to 2019, the highest proportion of Chinese outbound M&A has been directed to real estate (18%), energy (12%), and materials (11%). Consumer related products (discretionary and staples) comprised 14% of outbound M&A. And yet, a shift in sector allocation was underway over these years. From 2010 to 2014, the majority of Chinese outbound M&A went to energy (28%), real estate (16%), and utilities (11%). Since 2010, the sectors with the highest outbound M&A have broadened to include real estate (20%), materials (12%), and consumer discretionary products (11%). Throughout this period, the percentage of Chinese outbound M&A consisting of real estate, utilities, and materials has remained fairly stable, with the exception of the energy sector, which has observed a substantial drop, from 28% to 3%. Meanwhile, Chinese outbound M&A in the IT and healthcare sectors increased by 6% and 2%, respectively, showcasing China's notable advancement and investment in the tech and health/insurance industries. Likewise, communication services rose by 7%, growing from 3% to 10%.

During the same period, the U.S. outbound M&A would prove more selective, with Information Technology and healthcare sectors being the most active (14% each), in addition to industrials and real estate (12% each). The data in the Table 2.8 suggests U.S. outbound M&As were characterized by two unique four-year phases: 2010-2014 and 2015-2019. In the first, most outbound M&A were directed toward industrials (14%), real estate, healthcare, and financial (12% each) sectors. In the second, most were channeled to the IT and healthcare (15% each) sectors, as well as real estate (13%).

Overall, the proportion of U.S. outbound M&A consisting of real estate, healthcare, industrials, and materials remained steady. IT saw an increase of merely 4%, while financials saw a drop of 3%. There were no significant shifts in M&A sector allocations, unlike in the case of Chinese M&As. Figure 2.14 illustrates US long-term interests in investing in healthcare and high-tech industries, mirroring China's priorities over the same decade.

As Figure 2.15 shows, the United States consistently accounted for the largest share of global outbound M&A, at around 40% in the early 2000s, ebbing significantly in 2005-2015 to around 25%, once other countries came into the picture. Nevertheless, from a low of 16% in 2016, the share of the U.S. outbound M&A rebounded, reaching nearly 36% by 2019. China, the only emerging market among the ten biggest overseas acquirers, oversaw a gradual increase in its share in global outbound M&A from 2000 to 2013. In 2016, it enjoyed an increase of 122% year-to-year, only to drop dramatically since then - from 16% in 2017 to a mere 6% in 2019.

Figure 2.15. China and US Outbound announced M&A, as a percentage of the value of total outbound M&A deals by the top 10 investor countries, 2000-2019



Note: M&A Data for China includes data for Macau and Hong Kong.
Source: EMI Research team based on M&A Data from Capital IQ, accessed 22-29 April and 1 May 2020.

Table 2.8. Greenfield 2003 (first available year in the database) - 2008 and M&A (2000 – 2008) pre-Global Financial Crisis and post (2009-2019).

Country	Greenfield OFDI (USD million)		Outbound M&A (USD million)	
	*Pre-crisis*** *(2003-2008)*	*Post-crisis (2009-2019)*	*Pre-crisis (2000-2008)*	*Post-crisis (2009-2019)*
China*	Value: 176,336 Rank: #8	Value: 708,648 Rank: #2 Growth: 301.9%	Value: 119,012 Rank: #9	Value: 878,572 Rank: #7 Growth: 638.2%
United States	Value: 1,017,426 Rank: #1	Value: 1,361,638 Rank: #1 Growth: 33.8%	Value: 1,381,215 Rank: #1	Value: 2,127,626 Rank: #1 Growth: 54.0%
Korea	Value: 129,972	Value: 285,537 Growth: 119.7%	Value: 16,703	Value: 170,434 Growth: 920.4%
India	Value: 91,944	Value: 163,074 Growth: 77.4%	Value: 55,565	Value: 63,456 Growth: 14.2%
Brazil	Value: 30,057	Value: 48,394 Growth: 61.0%	Value: 36,624	Value: 60,463 Growth: 65.1%

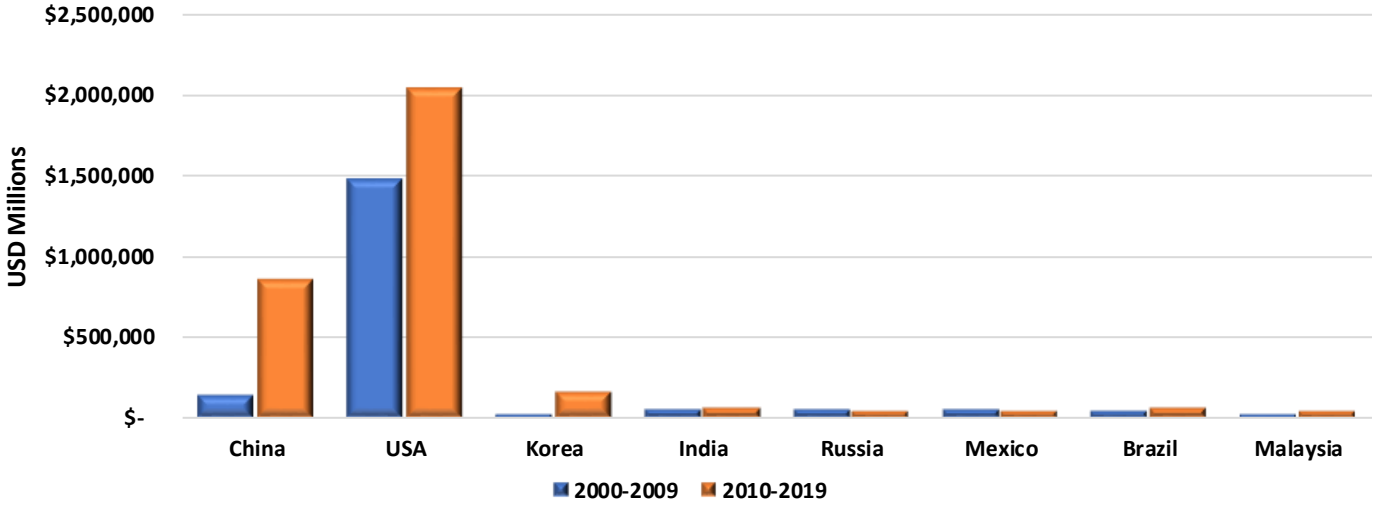
*Includes data for Hong Kong and Macau.
** Data on announced greenfield FDI projects start in 2003
Source: EMI Research team based on Greenfield OFDI data taken from UNCTAD database, accessed April 2020. M&A Data from Capital IQ, accessed 22-29 April and 1 May 2020.

All countries examined in Figure 2.16 (with the exception of Russia and Mexico), saw an increase of total outbound M&A from one decade (2000-2010) to the next (2009-2018), with E20 countries such as China and South Korea registering the largest gains (638.2% and 920.4%, respectively), Brazil with 65% came next and then India with only 14.2%, both at much more moderate values than China or Korea. United States started already as a leader with a 54% increase from one decade to the next. As the data in this

that international M&A is a game for the developed countries while emerging markets, with the exception of China and, to a certain extent, Korea, do not involve in such activity. It is interesting to note that the Global Financial crisis which divides both decades has been used as springboard for Chinese firms to grow and go global (Chapter 1).

As for overseas greenfield investments, data collection by fdiMarkets started at 2003, hence we still use 2009 as the dividing point but we compare six years before the Global financial crisis with the decade after. We see similar gains as per M&A, with China and South Korea leading the E20) and registering the largest gains (301.9 and 119.7%, respectively). As it happened with M&A, United States started as a leader and similarly, the gain from before the crisis to the decade after the crisis is more moderate with a 33.8% increase. From more moderate starting values, India increased 77.4% and from an even much lower point than India, Brazil gained 61%.

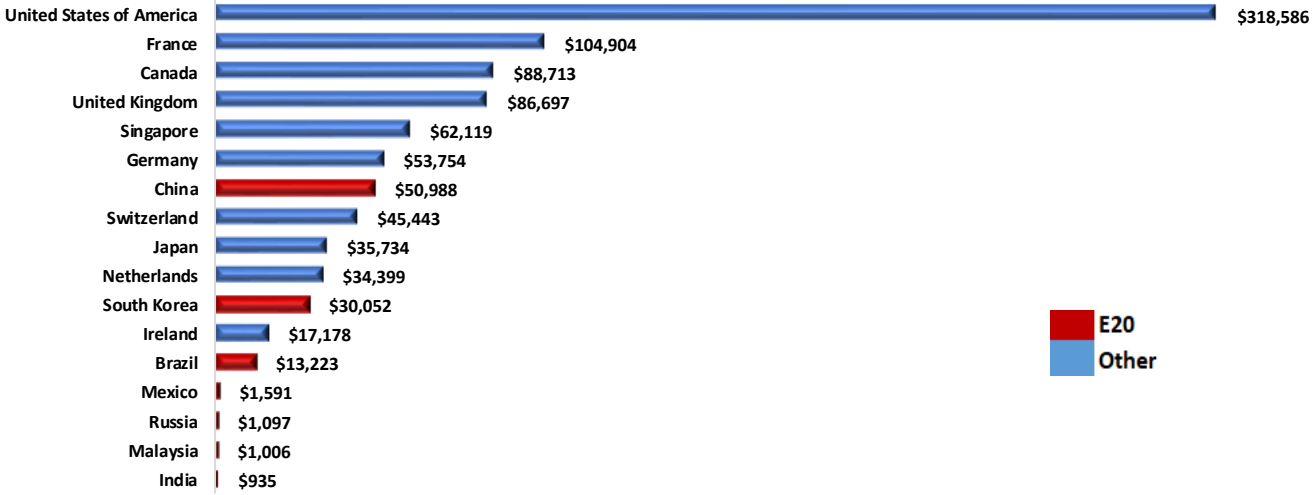
Figure 2.16. Outbound M&A of Selected Countries, 2000-2009 vs. 2010-2019.



Note: Data for China includes Hong Kong and Macau. Excludes cancelled deals.
Source: EMI Research team based on Capital IQ, accessed April - May 2020.

In 2019, and as shown in Figure 2.17, the United States leveraged the highest activity by total dollar amount, with triple the M&A deal value as the next highest-ranked country on the list, France. Besides the U.S., other G-7 countries such as France, Canada, and the U.K. ranked in the top positions. China had comparable outbound M&A activity to Germany, reaching close to 51 billion USD in 2019. Other major emerging markets such as Brazil, Mexico, Russia, Malaysia, and India reported smaller M&A outbound values compared to the G-7 countries.

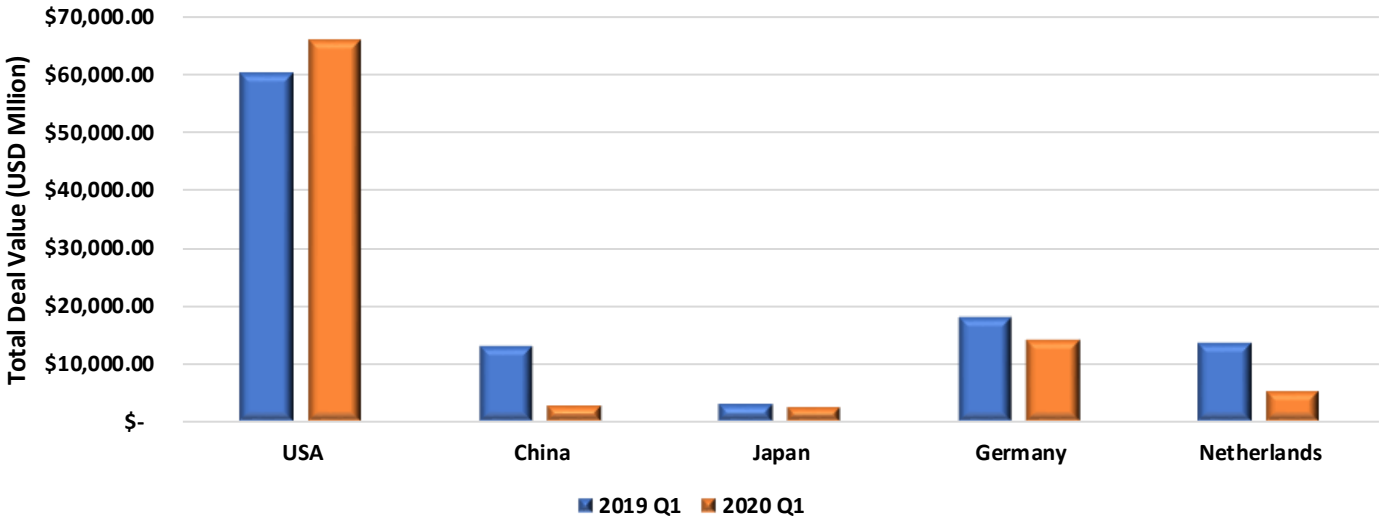
Figure 2.17. Outbound M&A (USD Million) of Selected Countries 2019



Note: Data for China includes Hong Kong and Macau. Excludes cancelled deals.
Source: EMI Research team based on Capital IQ, accessed April –May 2020.

If we want to account for the pandemic effect in 2020 Q1, most countries including China, Germany, and the Netherlands saw a drop in outbound M&A from 2019 Q1 to 2020 Q1. China registered the largest fall (see Figure 2.18). The exception was the United States which was able to increase the value of its international M&A. Japan took advantage of the opportunities of the crisis, with an increase in the number of M&A deals, despite an overall decline in total outbound M&A by value. Beyond China, the slowdown may be less pronounced due to the delayed effect of COVID-19. Here, Q2 and Q3 data should provide more valuable insight into COVID-19's impact worldwide.

Figure 2.18. Outbound M&A (Value) of Selected Countries, 2019 Q1 vs. 2020 Q1



Note: Countries selected based on top 5 countries with largest OFDI over 2009-2018 period. Data for China includes Hong Kong and Macau. Excludes cancelled deals.
Source: EMI Research team based on Capital IQ, accessed 29 April – 5 May 2020.

2.4. Moving forward, will Emerging Market multinationals continue its international expansion?

Emerging multinationals have a proven record of competitive global growth, making strategic use of both greenfield expansion and M&As. Greenfields are the preferred choice for emerging countries as six Asian E20 countries: China, South Korea, India, Russia (Euro-Asia), Malaysia and Thailand were among the twenty biggest investors in the world over the past decade. However, in M&A only China and, to a certain extent, Korea stand out and the rest do not appear at the top. The former's surge in M&A activity ran the gamut of technology and knowledge-driven ventures in advanced markets, as well as natural resources-focused acquisitions in Africa and Latin America. Cross-border M&A powered Chinese firms to establish new marketing and distribution channels at an opportune moment, fueled by favorable exchange rates, as a result of which valuations of foreign targets became more affordable, especially after the Global Financial Crisis (GFC) of 2008-2009, boosting Chinese outbound M&A activity from less than USD 40 billion in 2007 to over USD 200 billion in 2016 although declining afterwards. Our analysis has highlighted three critical phenomena:

- The growing importance of M&A activity as a mode of international expansion for Chinese and Korean firms. We expect this trend to continue even after the current COVID crisis. However, while Chinese firms would enter into the United States and Europe after the GFC, the focus may be shifting to its natural market, Asia, Belt and Road Initiative (BRI) countries and Latin America post-COVID crisis, as the trade war with the United States may drive more regionalization.
- Even if the United States remains as the primary destination, China's greenfield investments on the whole are predominantly of a South-South nature, mainly in Asia, though the share of Chinese investment in developed countries increased noticeably post-GFC. This trend may slow or reverse in the coming years, however, due to ongoing trade tensions and increased scrutiny on Chinese investments and acquisitions in the United States and Europe.
- In both greenfield projects and M&As, service-based and consumer-related industries grew in attractiveness for Chinese companies, while heavy or more traditional industries such as Energy (Oil, Coal and Gas) or Materials (Metals) either stagnated or declined in importance. This change suggests that eMNCs may increasingly prioritize consumer markets around the world. What is more, the Alternative and Renewable Energy Industry is posed to make up a greater part of the Chinese greenfield project portfolio, further accelerating a shift in investment strategies.

China's companies have etched their place as major global investors, a radical shift from the world as we knew it as recently as 2009. To achieve this, they used the opportunities created by the GFC to expand aggressively abroad. They assumed ever greater risks, at times paying high premiums for overseas acquisitions. Nonetheless, Chinese M&A activity has slowed in recent years, a retrenchment in activity that portends a double blow: increased scrutiny of outflows from government at home and heightened control and supervision of foreign acquisitions overseas, often based on national security concerns. Despite such headwinds, the Chinese overseas activity is past the point of no return, whether through the Belt and Road Initiative or further gambits to come. With the ongoing US-China trade tensions, and the shock of the COVID 19 pandemic, U.S. (and European) firms are reevaluating their supply chains, wanting to review their value chain, and making them more resilient. As a result, we expect more regional value chains which may be more resistant to external shocks (Chapter 4).

The future has yet to be written, but Chinese and Korean firms have recovered from the COVID crisis faster and are well positioned to play a key role in shaping it, reflecting their economic power.

References

Casanova, L. (2018). La internacionalización de las empresas latinoamericanas. In Blanco-Estévez, A. (editor). Global Latam. Series Inversión extranjera. ICEX. Secretaría General Iberoamericana. Ministerio de Industria y Comercio. http://www.investinspain.org/invest/es/canal-de-informacion/documentacion/informacion-sobre-inversion-extranjera-directa-ied/DOC2018804475.html?orderBy=xfwm_cnt_Fecha1&orderType=desc

Casanova, L.; Miroux, A. 2019a. Emerging Markets Report 2019. Building Constructive Engagement. 8 November 2019. ISBN-13: 978-1-7328042-3-4.. ISSN 2689-0127 https://ecommons.cornell.edu/handle/1813/66953

Casanova, L.; Miroux, A. 2019b. The Era of Chinese Multinationals: How Chinese Companies Are Conquering the World. Academic Press. Elsevier. http://bit.ly/bookchina Paperback ISBN: 9780128168578 eBook ISBN: 9780128170601 DOI https://doi.org/10.1016/C2018-0-01595-9 https://www.sciencedirect.com/book/9780128168578/the-era-of-chinese-multinationals?via=ihub=h

Casanova, L.; Miroux, A. 2018. Emerging Markets Report 2018. Emerging Markets Reshaping Globalization. 9 November 2018. ISBN-13: 978-1-7328042-2-7. ISSN 2689-0127 https://ecommons.cornell.edu/handle/1813/66953

Casanova, L.; Miroux, A. 2017. Emerging Market Multinationals Report: Emerging Multinationals in a Changing World. Emerging Markets Institute in collaboration with the OECD development Center. S.C. Johnson School of Management. Cornell University. http://bit.ly/eMNCreport. ISBN: 978-1-7328042-1-0 . ISSN 2689-0127. https://ecommons.cornell.edu/handle/1813/66953

Casanova, L.; Cornelius, P. and Dutta, S. 2018. Entrepreneurship and the Finance of Innovation in Emerging Markets. Academic Press. Elsevier. https://www.elsevier.com/books/financing-entrepreneurship-and-innovation-in-emerging-markets/casanova/978-0-12-804025-6

Casanova, L.; Miroux, A. 2016. Emerging Market Multinationals Report: The China Surge. Emerging Markets Institute in collaboration with the OECD development Center. S.C. Johnson School of Management. Cornell University. http://bit.ly/eMNCreport. ISBN-13: 978-1-7328042-0-3. . ISSN 2689-0127. https://ecommons.cornell.edu/handle/1813/66953

Casanova, L. Kassum, J. 2014. The Political Economy of An Emerging Global Power: In Search of the Brazil Dream. Academic Press. Palgrave Macmillan. DOI 10.1057/9781137352361. Hardcover ISBN 978-1-137-35235-4. Softcover ISBN 978-1-349-46916-1 International Political Economy Series. ISSN 2662-2483. eBook ISBN 978-1-137-35236-1 https://www.palgrave.com/gp/book/9781137352354

Ciprian, S., Peng, M.W. and Bruton, G.D. (2014). Slack and the performance of state-owned enterprises. Asia Pacific Journal of Management.

Cuervo-Cazurra, A. (2012). Extending theory by analyzing developing country multinational companies: Solving the Goldilocks debate, Global Strategy Journal, Vol. 2, Strategic Management Society, Chicago, pp. 153-167.

Cuervo-Cazurra, A. and R. Ramamurti (eds.) (2014). Understanding Multinationals from Emerging Markets. pp. Cambridge: Cambridge University Press.

Dunning, J.H. (1993). Multinationals Enterprises and the Global Economy. Reading. MA: Addison-Wesley.

Dunning, J.H. (2005). The evolving world scenario in S. Passow and M. Runnbeck (eds.), What's Next? Strategic Views on Foreign Direct Investment (pp. 12-17). Stockholm: Invest in Sweden Agency.

ECLAC. (2013). Foreign Direct Investment in Latin America and the Caribbean 2012. Santiago de Chile: United Nations Economic Commission for Latin America and the Caribbean.

Fortune. Fortune Global 500 directory. (n.d.). <http://fortune.com/fortune500/> Accessed May 2019.

Fleury, A. and Fleury, M.T. L. (2012). Brazilian Multinationals: Competences for Internationalization, Cambridge: Cambridge University Press.

Garcia, A. and Xu, J. (2018). China's overseas mergers and acquisitions may not have slowed down in 2017 and will probably boom in 2018. <http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx> Accessed July 2018.

Guillén, M.F. and E. García-Canal. The American Model of the Multinational Firm and the 'New' Multinationals from Emerging Economies, Academy of Management Perspectives, Vol. 23/2, Briarcliff Manor, NY, pp. 23-35 <http://www-management.wharton.upenn.edu/guillen/PDF-Documents/New_MNEs_Acad_Mgmt_Perspectives-2009.pdf> Accessed June 2019.

Lall, S. (1984). New Multinationals: Spread of Third World Enterprises, Wiley/IRM Series on Multinationals. New York: John Wiley & Sons Ltd.

Porter, M.E. (1980) Competitive Strategy. New York: Free Press.

Prahalad, C.K. (2005). The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits. Upper Saddle River, NY: Wharton School Publishing.

S&P Capital IQ. (2019). M&A data retrieved from S&P Capital IQ database. <https://www.capitaliq.com/> Accessed March 2019.

UNCTAD. (n.d.) Statistical data for FDI and OFDI. United Nations: New York and Geneva. <https://unctadstat.unctad.org/EN/>

UNCTAD. (2018). World Investment Report: Investment and New Industrial Policies. United Nations: New York and Geneva.

APPENDIX 1. Research Methodology

As in previous reports (Casanova and Miroux 2017, 2018, 2019), M&A data are calculated on an "ultimate parent buyer" and an "ultimate parent target" basis. We discarded those deals where Capital IQ did not provide information on ultimate parents. This narrowed the data set.

Capital IQ may be providing the appropriate data with its filters, but not display it to some of the individual users (as opposed to corporate clients). Moreover, manual screening is done without full information of Capital IQ data which is not available to us.

It should also be noted that:

- Over 60% of deals listed in Capital IQ (do not have any deal values recorded; they are considered in the number of projects but not in the total value.
- Capital IQ updates deal values of M&A daily, potentially causing data to be different from past EMI publications (Casanova and Miroux 2017-2018-2019).
- Other research publications report total M&A deals announced including those that have already been cancelled and labelled as 'Announced Cancelled', while EMI reports do not include those later deals in its total values.

Other Data Considerations

- China data includes Hong Kong and Macau, as many Chinese companies are headquartered in Hong Kong and Macau for tax, accounting, and other business purposes.
- S&P Capital IQ has internal filters not available for individual users to see, (available to corporations) which makes it seem like some individual data points do not follow screening criteria/filters.
- The percentage of deals without information on deal value may be higher in more recent years, or in countries with more state-owned companies (partial or full).
- Capital IQ is updated daily. Hence, tables and figures are based on data collected at a particular time period that is specified in the source of the table.
- Capital IQ assigns the total amount of an M&A deal to all companies participating in the acquisition without specifying how much each partner has contributed to. For lack of more detailed information, those totals are the numbers we assign to each company even if these may not the represent the actual amount invested by the company.

Appendix 2. CK Assets

CK Asset Holdings Limited

CK Asset Holding Limited adopted such name in 2017 after being formed in 2015 as a spin-off of Cheung Kong Holdings, taking the name of Cheung Kong Property Holdings Limited at the time. They focus on property development business, but also work on property management, infrastructure and utility assets, and aircraft leasing.

Since its creation, CK Asset Holding Limited has made some M&As of significant value: such as 40% stake (i.e. USD 4,205.8 million) of DUET Group, an Australian energy assets group; 35% stake (i.e. USD 6,796.78) in its Luxemburg GmbH, an energy measuring company as a joint venture; and the recent acquisition of Greene King, the biggest brewer and pub retailer in the US for USD 6,074.34 million.

Recent Developments: More recently, CK Assets Holdings has been known for its Sea To Sky project in Lohas Park, a joint venture with MTR Corporation. It has brought the district's most expensive flat price, with an average of USD2,042 per square foot after discounts of up to 22%, being 21% above the prevailing price of lived-in homes in the same zone. A highlight of the project are the discount rates and the flexible payments terms that the company implemented to reduce the risk and fear of a potential recession due to the increased tension between the US and China. These measures were successful after the release of the project, in which 12,896 buyers competed in the bidding for discount of the first 285 flats.

International Presence: Nowadays, they work in Hong King, China Mainland, Singapore, the United Kingdom, continental Europa, Australia, Canada, and United States.

Awards and Recognition: In 2019 the Group was recipient of the Listed Company Award of Excellence from the Hong Kong Economic Journal as well as the Outstanding Corporate Strategy Award from Eastweek magazine.

Regarding Environmental Responsibility, in 2019 the Holding earned the Hong Kong Award for Environmental Excellence as well as awards in three categories in the BOCHK Corporate Environmental Leadership Awards.

Revenue (2019): USD10,576-6 million

Assets (2019): USD 65,226 million

HQ: Central, Hong Kong

Foundation year: 2015

Employees: 56,000

Ownership: Publicly Listed

Industry: Real Estate Development

Source: EMI Research team based on data and information from Capital IQ, 2019 Fortune Global 500, South China Morning Post and CK Asset Holdings Limited 2019 report accessed by July 2020.

Appendix 3. Highlighted M&A deals and buyers.

Table 2.9. Top 50 outbound M&A in the World, 2010 - 2019

	Buyer (Ultimate Parent)	Headquarter	Amount (USD million)	Target	Country	Year*
1	Anheuser-Busch InBev SA/NV	Belgium	116,121	ABI SAB Group Holding Limited	United Kingdom	2015
2	Royal Dutch Shell plc	Netherlands	86,426	BG Group Limited	United Kingdom	2015
3	AbbVie Inc.	United States	86,223	Allergan plc	Ireland	2019
4	Takeda Pharmaceutical Company Limited	Japan	80,853	Shire plc	Ireland	2018
5	Bayer Aktiengesellschaft	Germany	66,279	Monsanto Company	United States	2016
6	British American Tobacco p.l.c.	United Kingdom	62,452	Reynolds American Inc.	United States	2016
7	Linde plc	United Kingdom	53,395	Linde Aktiengesellschaft	Germany	2016
8	Comcast Corporation	United States	49,687	Sky Limited	United Kingdom	2018
9	Enbridge Inc.	Canada	47,510	Spectra Energy Corp	United States	2016
10	China National Chemical Corporation Limited	China	46,323	Syngenta AG	Switzerland	2016
11	Peugeot S.A.	France	45,043	Fiat Chrysler Automobiles N.V. (BIT:FCA)	United Kingdom	2019
12	SoftBank Group Corp.	Japan	41,100	Sprint Corporation	United States	2012
13	Teva Pharmaceutical Industries Limited	Israel	38,800	Allergan plc, Global Generic Pharmaceuticals Business	United States	2015
14	Takeda Pharmaceutical Company Limited	Japan	36,220	Baxalta Incorporated	United States	2016
15	LafargeHolcim Ltd	Switzerland	31,979	Lafarge S.A.	France	2014
16	SoftBank Group Corp.	Japan	31,487	SVF HoldCo (UK) Limited	United Kingdom	2016
17	Johnson & Johnson	United States	29,853	Actelion Ltd	Switzerland	2017
18	Chubb Limited	Switzerland	28,605	The Chubb Corporation	United States	2015
19	British American Tobacco p.l.c.	United Kingdom	28,460	Lorillard, LLC	United States	2014
20	London Stock Exchange Group plc	United Kingdom	28,292	Refinitiv U.S. Holdings Inc.	United States	2019
21	Brookfield Asset Management Inc.	Canada	27,574	Brookfield Property REIT Inc. (NasdaqGS:BPYU)	United States	2017
22	Walgreens Boots Alliance, Inc.	United States	24,989	Alliance Boots GmbH	Switzerland	2014
23	Unibail-Rodamco-Westfield SE	France	23,315	Westfield Corporation	Australia	2017
24	Next Alt S.a.r.l.	Luxembourg	23,296	Societe Francaise du Radiotelephone - SFR S.A.	France	2014
25	Nokia Corporation	Finland	23,056	Alcatel-Lucent	France	2015
26	VEON Ltd.	Netherlands	22,993	WIND TELECOM S.p.A.	Italy	2010
27	Liberty Global plc	United Kingdom	22,778	Virgin Media Inc.	United States	2013
28	Bank of China Limited; Hillhouse Capital Group Limited; China Vanke Co., Ltd.; HOPU Jinghua (Beijing) Investment Consultancy Co.	China; United States; China; China	20,941	GLP Pte. Ltd.	Singapore	2017
29	Sanofi	France	20,480	Genzyme Corporation	United States	2010
30	Reckitt Benckiser Group plc	United Kingdom	19,668	Mead Johnson Nutrition Company	United States	2017
31	Next Alt S.a.r.l.; BC Partners; Canada Pension Plan Investment Board	Luxembourg; United Kingdom; Canada	19,433	Altice USA, Inc.	United States	2015
32	China National Offshore Oil Corporation	China	19,222	CNOOC Petroleum North America ULC	Canada	2012
33	Oi S.A.	Brazil	18,990	Pharol, SGPS S.A.	Portugal	2013
34	LVMH Moët Hennessy - Louis Vuitton, Société Européenne	France	18,750	Tiffany & Co.	United States	2019
35	E. Merck KG	Germany	17,333	Sigma-Aldrich Corporation	United States	2014
36	Telefónica, S.A.	Spain	17,328	**Vivo Participações S.A.**	Brazil	2011
37	NXP Semiconductors N.V.	Netherlands	17,297	Freescale Semiconductor, Ltd.	United States	2015
38	EssilorLuxottica Société anonyme	France	17,295	Luxottica Group S.p.A.	Italy	2017
39	CK Hutchison Holdings Limited	China	17,109	Wind Tre S.p.A.	Italy	2018
40	General Electric Company	United States	16,900	Alstom SA, Power and Grid Businesses	France	2014
41	Anheuser-Busch InBev SA/NV	Belgium	16,764	**Grupo Modelo, S.A.B. de C.V.**	Mexico	2012
42	Kotobuki Realty Co., Ltd.	Japan	16,024	Beam Suntory Inc.	United States	2014
43	Walmart Inc.	United States	16,000	**Flipkart Private Limited**	Singapore	2018

44	Novartis AG	Switzerland	16,000	GlaxoSmithKline plc, Marketed Oncology Portfolio, Related R&D Activities and AKT Inhibitor	United Kingdom	2014
45	BHP Group	Australia	15,754	Petrohawk Energy Corporation	United States	2011
46	AXA SA	France	15,443	XL Group Ltd	Bermuda	2018
47	Intel Corporation	United States	15,426	Mobileye N.V.	Netherlands	2017
48	Bausch Health Companies Inc.	Canada	15,337	Salix Pharmaceuticals Ltd.	United States	2015
49	Enbridge Inc.	Canada	15,263	Enbridge Energy Partners, L.P.	United States	2018
50	HWASEUNG Industries Co.,Ltd.	South Korea	14,954	Hwaseung Vina Co., Ltd	Vietnam	2015

*Year of announcement

Source: EMI Research team based on *Capital IQ, accessed 29 April – 3 May 2020. Excludes cancelled deals*.

Table 2.10. Top 20 outbound M&A made by E20 countries, 2010 - 2019

	Buyer (Ultimate Parent)	Headquarter	Amount (USD million)	Target	Country	Year*
1	China National Chemical Corporation Limited	China	46,323	Syngenta AG	Switzerland	2016
2	Bank of China Limited; Hillhouse Capital Group Limited; China Vanke Co., Ltd.; HOPU Jinghua (Beijing) Investment Consultancy Co.	China; United States; China; China	20,941	GLP Pte. Ltd.	Singapore	2017
3	China National Offshore Oil Corporation	China	19,222	CNOOC Petroleum North America ULC	Canada	2012
4	Oi S.A.	Brazil	18,990	Pharol, SGPS S.A.	Portugal	2013
5	CK Hutchison Holdings Limited; Li Ka Shing Foundation Ltd.	China	17,109	Wind Tre S.p.A.	Italy	2018
6	HWASEUNG Industries Co.,Ltd.	South Korea	14,954	Hwaseung Vina Co., Ltd	Vietnam	2015
7	China Investment Corporation	China	13,815	Logicor Europe Ltd.	United Kingdom	2017
8	Hainan Traffic Administration Holding Co., Ltd.	China	13,486	C2 Aviation Capital, Inc.	United States	2016
9	Bharti Airtel Limited	India	10,668	Bharti Airtel Africa B.V.	Netherlands	2010
10	CK Asset Holdings Limited; Power Assets Holdings Limited	China	10,515	DUET Group	Australia	2016
11	State Grid Corporation of China	China	10,302	CPFL Energia S.A.	Brazil	2017
12	Charoen Pokphand Group Co., Ltd.	Thailand	9,385	Ping An Insurance (Group) Company of China, Ltd.	China	2012
13	Samsung Electronics Co., Ltd.	South Korea	9,382	Harman International Industries, Incorporated	United States	2016
14	CK Hutchison Holdings Limited; Li Ka Shing (Global) Foundation; Power Assets Holdings Limited	China	9,062	Electricity Distribution Assets in U.K. of EDF Energy and CSW Investments	United Kingdom	2010
15	Tencent Holdings Limited	China	8,600	Supercell Oy	Finland	2016
16	Cresud Sociedad Anónima Comercial, Inmobiliaria, Financiera y Agropecuaria	Argentina	7,912	Discount Investment Corporation Ltd.	Israel	2017
17	CK Hutchison Holdings Limited; Li Ka Shing Foundation Ltd.	China	7,766	Northumbrian Water Group Limited	United Kingdom	2011
18	Hainan Traffic Administration Holding Co., Ltd.	China	7,656	Avolon Holdings Limited	Ireland	2015
19	Inversora Carso, S.A. de C.V.	Mexico	7,539	Fomento de Construcciones y Contratas, S.A.	Spain	2016
20	Enagás, S.A.; GIC Special Investments Pte. Ltd.; National Pension Service; The Blackstone Group Inc.	Spain; Singapore; South Korea; United States	7,367	Tallgrass Energy, LP	United States	2019

*Year of announcement

Source: EMI Research team based on *Capital IQ, accessed 29 April – 3 May 2020. Excludes cancelled deals*.

Appendix 3. Highlighted M&A deals and buyers in selected countries.

Table 2.11. Top 30 companies from U.S. in outbound M&A, 2010 - 2019

	Company	Industry	Total Invested (USD million)	No	Main Target	Country/Region	Year
1	The Blackstone Group Inc.	Asset Management and Custody Banks	114,839	273	Bradford & Bingley plc, 104,000 Buy-to-Let Mortgages	United Kingdom	2017
2	AbbVie Inc.	Biotechnology	86,223	1	Allergan plc (NYSE:AGN)	Ireland	2019
3	Bain Capital, LP	Asset Management and Custody Banks	69,479	96	KIOXIA Corporation	Japan	2017
4	Global Infrastructure Partners		65,679	18	Gatwick Airport Limited	France	2018
5	KKR & Co. Inc.	Asset Management and Custody Banks	65,266	131	Upfield Holdings BV	Netherlands	2017
6	The Carlyle Group Inc.	Asset Management and Custody Banks	51,951	177	Nouryon Cooperatief U.A.	Netherlands	2018
7	Lone Star Funds	Asset Management and Custody Banks	45,073	60	Royal Park Investments NV/SA, Credit Portfolio	Belgium	2013
8	Advent International Corporation		43,976	67	Nets A/S	Norway	2017
9	The Goldman Sachs Group, Inc.	Investment Banking and Brokerage	28,364	99	LeasePlan Corporation N.V.	Singapore	2015
10	TPG Capital, L.P.		26,057	78	Redbank Energy Limited	China	2011
11	Cerberus Capital Management, L.P.		23,642	76	£2.29 billion of Non-Core Loans Portfolio	United Kingdom	2016
12	State of California		22,191	5	Gatwick Airport Limited	France	2018
13	BRH Holdings GP, Ltd.		21,743	60	Verallia SA	France	2015
14	Hillhouse Capital Group Limited		20,941	4	GLP Pte. Ltd.	Singapore	2017
15	Morgan Stanley	Investment Banking and Brokerage	17,843	72	VTG Aktiengesellschaft (LSE:0NMI)	Germany	2018
16	Warburg Pincus LLC		15,013	46	Inmarsat Group Holdings Limited	United Kingdom	2019
17	Hunt Companies, Inc.		14,215	4	Cadent Gas Ltd	United Kingdom	2016
18	Hellman & Friedman LLC	Asset Management and Custody Banks	14,002	8	Nets A/S	Norway	2017
19	JPMorgan Chase & Co.	Diversified Banks	13,796	88	Spanish And Portugal Commercial Property Loan Portfolio	Spain	2014
20	Colony Capital, Inc.	Diversified REITs	12,788	25	AccorInvest Group SA	Luxembourg	2018
21	Fidelity National Information Services, Inc.	Data Processing and Outsourced Services	12,284	2	Worldpay Group Limited	United Kingdom	2017
22	BlackRock, Inc.	Asset Management and Custody Banks	11,141	116	ADNOC Oil Pipelines - Sole Proprietorship LLC	United Arab Emirates	2019
23	Sequoia Capital Operations LLC		11,050	9	360 Security Technology Inc. (SHSE:601360)	China	2015
24	StepStone Group LP		10,721	7	Nets A/S	Norway	2017
25	New China Capital Management, LLC		9,913	1	360 Security Technology Inc. (SHSE:601360)	China	2015
26	Invesco Ltd.	Asset Management and Custody Banks	8,809	102	Capital 8 Office Building in Paris	France	2018
27	Värde Partners, Inc.	Asset Management and Custody Banks	8,447	33	GE Finance And Insurance And GE Capital Finance Australia Pty Ltd	Australia	2015
28	Silver Lake		8,369	13	ZPG Limited	United Kingdom	2018
29	Jones Lang LaSalle Incorporated	Real Estate Services	8,010	110	Meguro Gajoen, Tokyo	Japan	2015
30	Ares Management Corporation	Asset Management and Custody Banks	7,832	49	Minerva Limited	United Kingdom	2011
		Top 30	**869,659**	**1,830**			

Source: EMI Research team based on Capital IQ, accessed 29 April – 3 May 2020. Excludes cancelled deals.

Table 2.12. Top 30 companies from China in outbound M&A, 2010 - 2019

	Company	Industry	Total Invested (USD million)	No.	Main Target Firm	Country/Region	Year
1	CK Hutchison Holdings Limited	Industrial Conglomerates	37,406	15	DUET Group	Australia	2016
2	Power Assets Holdings Limited	Electric Utilities	27,239	9	DUET Group	Australia	2016
3	Tencent Holdings Limited	Interactive Media and Services	25,270	12	Uber Technologies, Inc. (NYSE:UBER)	United States	2017
4	China Investment Corporation	Asset Management and Custody Banks	21,397	20	Logicor Europe Ltd.	United Kingdom	2017
5	China Vanke Co., Ltd.	Real Estate Development	21,303	5	GLP Pte. Ltd.	Singapore	2017
6	Bank of China Limited	Diversified Banks	21,106	3	GLP Pte. Ltd.	Singapore	2017
7	HOPU Jinghua		20,941	2	GLP Pte. Ltd.	Singapore	2017
8	Li Ka Shing Foundation Ltd.	Multi-Sector Holdings	19,084	4	Electricity Distribution Assets in UK of EDF Energy and CSW Investments	United Kingdom	2010
9	China Petrochemical Corporation	Integrated Oil and Gas	18,702	14	Syncrude Canada Ltd.	Canada	2010
10	China National Petroleum Corporation	Integrated Oil and Gas	18,403	14	Kashagan Oil Field	Kazakhstan	2013
11	CK Asset Holdings Limited	Real Estate Development	13,811	3	DUET Group	Australia	2016
12	Hainan Traffic Administration Holding Co., Ltd.	Industrial Conglomerates	12,909	18	Hilton Worldwide Holdings Inc. (NYSE:HLT)	United States	2016
13	Baring Private Equity Asia		11,934	28	Clarivate Analytics Plc (NYSE:CCC)	United Kingdom	2016
14	FountainVest Partners		11,135	6	Amer Sports Corporation	Finland	2018
15	CITIC Group Corporation	Industrial Conglomerates	10,514	8	Xstrata Peru S.A.	Peru	2014
16	Gaw Capital Partners		8,192	37	Office And Retail Units Of Duo Property Development in Singapore	Singapore	2019
17	PAG		8,157	11	Lexmark International, Inc.	United States	2016

18	Jynwel Capital Limited		7,919	5	EMI Music Publishing Limited	United Kingdom	2011
19	CITIC Capital Holdings Limited		7,810	26	Focus Media Holding Ltd.	Asia/Pacific	2012
20	China Three Gorges Corporation	Renewable Electricity	7,589	4	Peruvian Opportunity Company S.A.C./Sempra Americas Bermuda Ltd.	Peru	2019
21	Beijing Hony Asset Management Co., Ltd.		7,188	6	Playtika Ltd.	Israel	2016
22	Tonghai Holdings Co., Ltd		7,151	2	Playtika Ltd.	Israel	2016
23	Giant Network Group Co., Ltd.	Interactive Home Entertainment	6,015	2	Playtika Ltd.	Israel	2016
24	Elion Holdings Corporation Limited		5,850	1	Xstrata Peru S.A.	Peru	2014
25	AVIC Capital Co.,Ltd	Other Diversified Financial Services	5,522	6	Global Switch Holdings Limited	United Kingdom	2019
26	State Grid China Co., Ltd.	Electric Utilities	5,349	7	Chilquinta Energía S.A./Tecnored S.A.	Chile	2019
27	China Merchants Group Limited	Multi-Sector Holdings	5,305	9	Newcastle Port Corporation	Australia	2014
28	Yunfeng Capital		4,765	3	Playtika Ltd.	Israel	2016
29	China Everbright Limited	Diversified Capital Markets	4,447	5	Focus Media Holding Ltd.	Asia/Pacific	2012
30	Tianqi Lithium Corporation	Specialty Chemicals	4,275	2	Sociedad Química y Minera de Chile S.A. (NYSE:SQM)	Chile	2018
	Top 30		**386,688**	**287**			

Source: EMI Research team based on Capital IQ, accessed 29 April – 3 May 2020. Excludes cancelled deals.

Table 2.13. Top 30 companies from Japan in outbound M&A, 2010 - 2019

	Company	Industry	Total Invested (USD million)	Nr.	Main Target	Country/Region	Year
1	Oil and Natural Gas Corporation Limited	Integrated Oil and Gas	9,752	8	ZAO Vankorneft	Russia	2016
2	Tech Mahindra Limited	IT Consulting and Other Services	4,506	5	UK Asset Resolution Limited, Portfolio Of State-Owned Mortgages	United Kingdom	2014
3	Indian Oil Corporation Limited	Oil and Gas Refining and Marketing	2,243	4	TAAS-Yuryakh Neftegazodobycha LLC	Russia	2015
4	Sahara India Pariwar Ltd.	Industrial Conglomerates	1,518	3	Grosvenor House Hotel	United Kingdom	2010
5	SUN Group		1,348	3	Lakeside 1 Limited	United Kingdom	2014
6	Oil India Limited	Oil and Gas Exploration and Production	1,321	3	TAAS-Yuryakh Neftegazodobycha LLC	Russia	2015
7	Bharat Petroleum Corporation Limited	Oil and Gas Refining and Marketing	1,280	2	TAAS-Yuryakh Neftegazodobycha LLC	Russia	2015
8	GVK Power & Infrastructure Limited	Airport Services	1,260	1	GVK Hancock	Australia	2011
9	Essar Global Holdings Limited	Industrial Conglomerates	794	2	Essar Energy Limited		2014
10	Fortis Healthcare Limited	Health Care Facilities	700	3	Parkway Holdings Limited		2010
11	Hinduja Group Limited	Industrial Conglomerates	551	2	Old War Office Building		2014
12	Indiabulls Real Estate Limited	Diversified Real Estate Activities	453	1	Indiabulls Properties Investment Trust		2016
13	Reliance Industries Limited	Oil and Gas Refining and Marketing	440	4	Atlas Energy Resources, LLC, Marcellus Shale Natural-Gas Field	United States	2010
14	CX Partners		260	1	Aditya Birla Minacs Worldwide Ltd.	Asia/Pacific	2014
15	State Bank of India	Diversified Banks	241	1	Dongbu Daewoo Electronics Corporation	South Korea	2012
16	Motherson Sumi Systems Limited	Auto Parts and Equipment	201	1	80% in Peguform GmbH and 50% in Die Wethje GmbH Kunststofftechnik		2011
17	Samvardhana Motherson Group	Auto Parts and Equipment	201	1	80% in Peguform GmbH and 50% in Die Wethje GmbH Kunststofftechnik		2011
18	Mahindra & Mahindra Limited	Automobile Manufacturers	146	7	Pininfarina S.p.A. (BIT:PINF)	Italy	2015
19	Indian Farmers Fertiliser Cooperative Limited	Fertilizers and Agricultural Chemicals	128	1	Jordan Phosphate Mines Co. Plc (ASE:JOPH)		2018
20	Indian Potash Limited	Trading Companies and Distributors	128	1	Jordan Phosphate Mines Co. Plc (ASE:JOPH)		2018
21	CESC Limited	Electric Utilities	124	1	Port Harcourt Electricity Distribution Plc		2013
22	Arpwood Capital		112	1	Senvion S.A. (DB:SEN)		2015
23	Grasim Industries Limited	Construction Materials	109	1	AV Terrace Bay, Inc.		2012
24	Tata Sons Private Limited	Industrial Conglomerates	106	1	Agile Electric Sub Assembly Private Limited	Japan	2015
25	Mape Advisory Group Pvt. Ltd.		106	1	Agile Electric Sub Assembly Private Limited	Japan	2015
26	Glodyne Technoserve Limited	IT Consulting and Other Services	104	1	DecisionOne Corporation	United States	2010
27	Reliance MediaWorks Limited	Movies and Entertainment	60	2	Digital Domain Productions Inc.	United States	2012
28	Lupin Limited	Pharmaceuticals	60	1	JSC Biocom	Russia	2015
29	Opto Circuits	Health Care Equipment	56	1	Cardiac Science Corporation	United States	2010
30	Jacob Ballas Capital India Private Limited		50	1	Ebixcash World Money Limited	Asia/Pacific	2017
	Top 30		**28,359**	**65**			

Source: EMI Research team based on Capital IQ, accessed 29 April – 3 May 2020. Excludes cancelled deals.

Table 2.14. Top 30 companies from India in outbound M&A, 2010 - 2019

Company	Industry	Total Invested (USD million)	Nr.	Main Target	Country/Region	Year

1	National Pension Service	Diversified Support Services	45,334	35	Gatwick Airport Limited	United Kingdom	2018
2	Mirae Asset Financial Group.	Asset Management and Custody Banks	13,513	27	15 luxury hotels in the United States		2019
3	Hana Financial Group Inc.	Diversified Banks	10,590	27	Grandstar Cargo International Airlines Co., Ltd.	Far East	2011
4	Korea National Oil Corporation	Oil and Gas Exploration and Production	8,056	2	EP Energy LLC	United States	2012
5	POSCO	Steel	6,948	16	Companhia Brasileira de Metalurgia e Mineração	Brazil	2011
6	MBK Partners		6,836	12	WTT HK Limited	China	2016
7	Samsung Life Insurance Co., Ltd.	Life and Health Insurance	4,437	10	Commerzbank Tower in Frankfurt	Germany	2016
8	KCC Corporation	Diversified Chemicals	2,866	1	MPM Holdings Inc.	United States	2018
9	SJL Partners		2,866	1	MPM Holdings Inc.	United States	2018
10	Wonik QnC Corporation	Semiconductor Equipment	2,866	1	MPM Holdings Inc.	United States	2018
11	Korea Resources Corporation	Diversified Metals and Mining	2,767	9	28% Stakes in Ambatovy Minerals S.A. and Dynatec Madagascar, S. A.	Madagascar	2017
12	Samsung Securities Co.,Ltd.	Investment Banking and Brokerage	2,363	3	Commerzbank Tower in Frankfurt	Germany	2016
13	Korean Federation of Community Credit Cooperatives	Diversified Support Services	2,278	8	Three First National Plaza	United States	2011
14	The Korean Teachers' Credit Union	Specialized Finance	2,162	7	Three First National Plaza	United States	2011
15	Korea Electric Power Corporation	Electric Utilities	2,160	11	PT Bayan Resources Tbk (IDX:BYAN)	Southeast Asia	2010
16	Korea Investment Holdings Co., Ltd.	Investment Banking and Brokerage	2,033	14	Building Located At 195 Broadway In Manhattan	N/A	2019
17	Meritz Securities Co., Ltd.	Investment Banking and Brokerage	1,749	5	20 Old Bailey in London	United Kingdom	2018
18	Mirae Asset Daewoo Co., Ltd.	Diversified Capital Markets	1,595	4	Tour Majunga in La Défense	France	2019
19	FILA Holdings Corporation	Apparel, Accessories and Luxury Goods	1,490	2	Acushnet Company	United States	2011
20	Hanwha Investment & Securities Co., Ltd.	Investment Banking and Brokerage	1,484	3	Dunkerque LNG SAS	France	2018
21	FG Asset Management		1,458	7	20 Old Bailey in London	United Kingdom	2018
22	Public Officials Benefit Association		1,326	1	Portfolio of 42 Logistics Assets across 4 countries in Europe	France	2019
23	Multi Asset Global Investments Co.,Ltd.	Asset Management and Custody Banks	1,312	2	Acushnet Company	United States	2011
24	Atinum Partners	Asset Management and Custody Banks	1,290	3	Daesung Industrial Gases Co., Ltd.	Asia/Pacific	2014
25	Hanwha Life Insurance Co., Ltd.	Life and Health Insurance	1,280	3	Real estate in Washington, Paris and Montreal	France	2014
26	SK Innovation Co., Ltd.	Oil and Gas Refining and Marketing	1,213	5	Sky Property Management Limited	British Virgin Islands	2013
27	SK Holdings Co., Ltd	Industrial Conglomerates	1,209	9	Darwin LNG and BayuUndan	Australia	2019
28	Korea Gas Corporation	Gas Utilities	1,116	8	Santos GLNG Pty Ltd.	Australia	2010
29	Kyobo Life Insurance Co., Ltd.	Life and Health Insurance	1,102	2	Real estate in Washington, Paris and Montreal	France	2014
30	IGIS Asset Management Co., Ltd		1,089	4	Trianon Tower in Frankfurt	Germany	2018
	Top 30		**136,787**	**242**			

Source: EMI Research team based on Capital IQ, accessed 29 April – 3 May 2020. Excludes cancelled deals.

Table 2.15. Top 30 companies from South Korea in outbound M&A, 2010 - 2019

	Company	Industry	Total Invested (USD million)	No	Main Target
1	National Pension Service	Diversified Support Services	50,348	43	Gatwick Airport Limited
2	Korea National Oil Corporation	Oil and Gas Exploration and Production	17,800	17	EP Energy LLC
3	HWASEUNG Industries Co.,Ltd.	Footwear	15,002	3	Hwaseung Vina Co., Ltd
4	Mirae Asset Financial Group.	Asset Management and Custody Banks	13,946	36	15 luxury hotels in the United States
5	Hana Financial Group Inc.	Diversified Banks	11,442	35	Grandstar Cargo International Airlines Co., Ltd.
6	MBK Partners	Asset Management and Custody Banks	10,368	17	WTT HK Limited
7	POSCO	Steel	8,897	56	Companhia Brasileira de Metalurgia e Mineração
8	Doosan Corporation	Industrial Conglomerates	6,308	9	Bobcat Company, Inc.
9	Samsung Life Insurance Co., Ltd.	Life and Health Insurance	4,437	13	Commerzbank Tower in Frankfurt
10	Korea Electric Power Corporation	Electric Utilities	3,483	21	PT Bayan Resources Tbk
11	Korea Investment Holdings Co., Ltd.	Investment Banking and Brokerage	3,089	23	Building Located At 195 Broadway In Manhattan
12	Samsung Securities Co.,Ltd.	Investment Banking and Brokerage	2,973	5	Commerzbank Tower in Frankfurt
13	KCC Corporation	Diversified Chemicals	2,967	3	MPM Holdings Inc.
14	IGIS Asset Management Co., Ltd	Asset Management and Custody Banks	2,941	5	Real Estate Asset in Gangnam Business District, Seoul, South Korea
15	SJL Partners	Asset Management and Custody Banks	2,866	1	MPM Holdings Inc.
16	Wonik QnC Corporation	Semiconductor Equipment	2,866	1	MPM Holdings Inc.
17	Korea Resources Corporation	Diversified Metals and Mining	2,786	12	28% Stakes in Ambatovy Minerals S.A. and Dynatec Madagascar, S. A.
18	Mirae Asset Daewoo Co., Ltd.	Diversified Capital Markets	2,490	9	Tour Majunga in La Défense
19	Lotte Shopping Co., Ltd.	Department Stores	2,468	16	PT. Lotte Shopping Indonesia
20	KB Financial Group Inc.	Diversified Banks	2,441	14	Joint Stock Company Bank CenterCredit
21	Korean Federation of Community Credit Cooperatives	Diversified Support Services	2,278	8	Three First National Plaza
22	LOTTE Corporation	Industrial Conglomerates	2,256	21	Lotte Hotel New York Palace, LLC

23	The Korean Teachers' Credit Union	Specialized Finance	2,162	7	Three First National Plaza
24	Samsung Electronics Co., Ltd.	Technology Hardware, Storage and Peripherals	2,161	48	Novaled GmbH
25	NAVER Corporation	Interactive Media and Services	2,068	16	LINE Corporation
26	Public Officials Benefit Association	Asset Management and Custody Banks	1,991	4	Portfolio of 42 Logistics Assets across 4 countries in Europe
27	SK Innovation Co., Ltd.	Oil and Gas Refining and Marketing	1,871	10	Sky Property Management Limited
28	IMM Private Equity, Inc.	Asset Management and Custody Banks	1,868	2	Kyobo Life Insurance Co., Ltd.
29	Hahn & Co. Auto Holdings Co., Ltd.	Asset Management and Custody Banks	1,810	6	Global fluid pressure & controls business of Magna International Inc.
30	Hanwha Investment & Securities Co., Ltd.	Investment Banking and Brokerage	1,764	4	Dunkerque LNG SAS
		Top 30	**190,145**	**465**	

Source: EMI Research team based on Capital IQ, accessed 29 April – 3 May 2020. Excludes cancelled deals.

Table 2.16. Top 8 companies from Brazil in outbound M&A, 2010 - 2019

	Company	Industry	Total Invested (USD million)	Nr.	Main Target	Country	Year
1	Oi S.A.	Integrated Telecommunication Services	18,990	1	Pharol, SGPS S.A. (ENXTLS:PHR)	Portugal	2013
2	BTG Pactual G7 Holding S.A.	Multi-Sector Holdings	3,822	7	Petrobras Oil and Gas B.V.	Netherlands	2013
3	Vale S.A.	Steel	2,500	1	VBG-Vale BSGR Limited	Guernsey	2010
4	Banco Safra S.A.	Diversified Banks	2,479	2	Chiquita Brands International Inc.	United States	2014
5	Refrescos Bandeirantes Industria E Comercio Ltda.		1,725	3	AdeS Alimentos de Soja SA	Argentina	2014
6	Brasal Refrigerantes S/A.		1,725	3	AdeS Alimentos de Soja SA	Argentina	2014
7	Sorocaba Refrescos S.A.	Soft Drinks	1,725	3	AdeS Alimentos de Soja SA	Argentina	2014
8	Solar.BR Participações S.A.		1,725	3	AdeS Alimentos de Soja SA	Argentina	2014
		Top 8	**46,680**	**67**			

Source: EMI Research team based on Capital IQ, accessed 29 April – 3 May 2020. Excludes cancelled deals.

Chapter 3
Ten Years that Changed Emerging Markets

Lourdes Casanova - Gail and Rob Cañizares Director, Cornell University (Ithaca, United States)
Anne Miroux - Faculty Fellow, Cornell University (Ithaca, United States)

Executive Summary

The 2010s was nothing short of a period of reckoning. Many trends and events sharpened the world's awareness of the relevance of emerging markets in the global economy, in geopolitics and as innovation and technology leaders.

The decade began and ended with crisis. Emerging economies harnessed the first, the Global Financial Crisis, boosting their participation in the global economy. Building upon progress achieved at the turn of the century, they moved swiftly and steadily ahead in global affairs. Their economies grew and poverty levels declined. They consolidated their role as major trade and investment partners and emerged as key actors in global innovation and technology. They also launched key initiatives—the Belt and Road Initiative and the creation of the development banks, the NDB (new Development Bank) and the AIIB (Asian Infrastructure Investment Bank). Not all achieved equal success however, with Asia leading the pack while some others—especially in Latin America—would fall behind. By decade's end, there were looming threats, but prospects remained largely favorable for emerging markets. The present decade had only begun when the second crisis, the COVID pandemic, struck, a crisis of historic proportions and of such devastating consequence, as seen in the subsequent Chapter.

Juxtaposing emerging economies with developed markets may not always do justice to the progress made by these economies individually, as the case of the E20 illustrates. To better gauge how far E20 economies have come both in relation to one another and to themselves, we include in this Report our first edition of the E20 ranking. It measures economic, technological, and social progress based on average annual GDP growth; mobile penetration; and the human development index (HDI) published by UNDP. Beyond the realm of economics, a number of events (in the field of science, technology, sports, culture, international relations) also illustrate the deep transformation brought about by emerging markets. Such milestones are included in an Appendix to Part I of this Report.

3.1. Introduction

The second decade of the millennium would begin and end in crisis. Emerging economies harnessed its beginning—the fallout of the Global Financial Crisis (GFC). They boosted their participation in the global economy and consolidated their economic and geopolitical power. They built upon progress achieved at the turn of the century, moving swiftly and steadily ahead in global affairs.

Asia led the pack, and even as others fell behind, on the whole, the emerging economies were on a strong footing when the decade ended. While there were looming threats, prospects remained basically positive.

This new decade had only barely begun when the second COVID crisis struck, the proportion of which would defy all precedent and even means of measurement (see Chapter 4).

This chapter analyzes how the decade before COVID changed emerging economies, and how the world was remade on its heels. We focus on the following trends: 1) the performance of emerging economies in growth and poverty reduction; 2) their rise as major trade and investment partners; 3) the prominent status acquired by eMNCs in global business; 4) their place as global innovators and technology leaders; and 5) the now widely felt soft power of China.

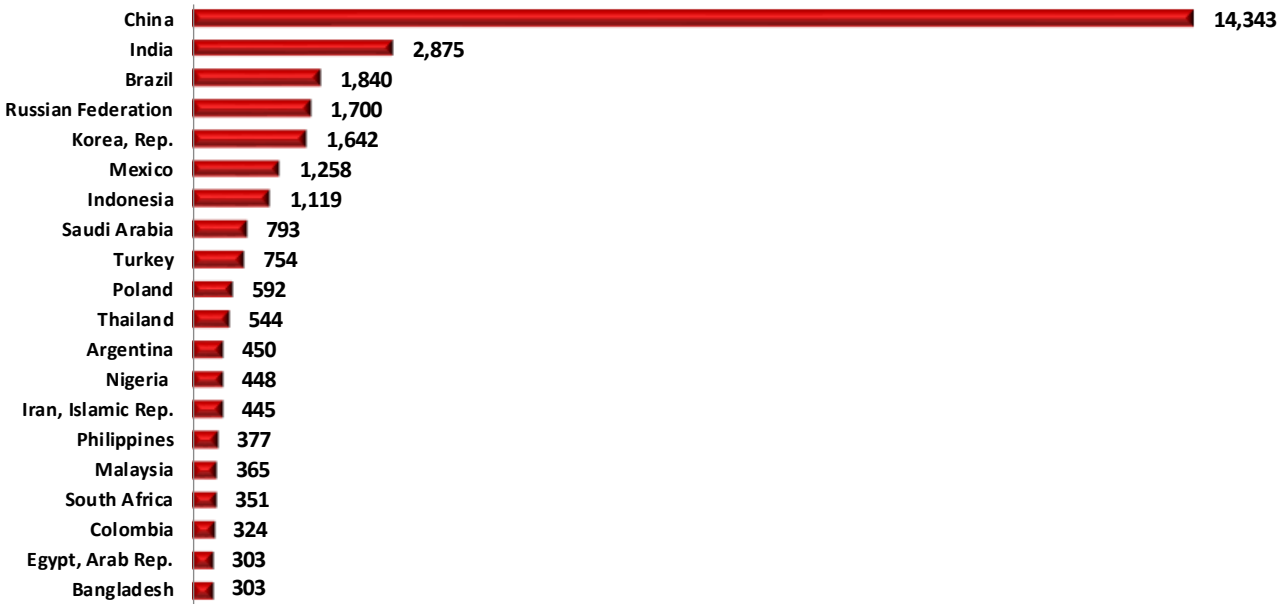
We undertake this analysis through the lens of the E20. To formally define the E20 for our purposes, we considered the size, as measured by nominal gross domestic product (GDP), and weight in terms of demography of each economy. We also considered the emerging economy groupings of major international organizations (the International Monetary Fund (IMF) and the United Nations (UN)) as well as those from think tanks and research institutes (Casanova and Miroux, 2019).

In this year's report, Egypt (out of the list in the 2019) re-entered it, while Bangladesh joined it. They replace Pakistan and Chile. Hence, in this edition, the E20 includes the following countries: Argentina, Bangladesh, Brazil, China, Colombia, Egypt, India, Indonesia, Iran, Malaysia, Mexico, Nigeria, Philippines, Republic of Korea (also referred to as Korea in this report), Saudi Arabia, South Africa, Thailand and Turkey - as well as Poland and the Russian Federation (Figure 3.1). The E20 accounted for close to 47 per cent of the world GDP on a PPP basis in 2019, and for 56 per cent of the world population.

As we close the first five years cycle of the Report, we have come to re-consider the inclusion of Korea among emerging economies. The decade overall has been quite auspicious to the country's economic growth. Korea is the only economy of the E20 with a GDP per capita that now surpasses that of a number of developed countries including Greece, Portugal and Spain. In 2009, based on GDP per capita it was ranked 41, below all these 3 members of the E.U. It is now among the 30 top countries in the world - ranked 28th in 2019 - above Greece, Portugal and Spain and just below Italy. Compared to Japan, its GDP per capita was about half the Japanese GDP in 2009; in 2019 it was more than 80%. Hence, while Korea is still classified as an emerging economy by some observers – it is still in the MSCI Emerging Markets Index for instance - from next year on we will not include Korea among emerging economies.

This fifth edition of the Report also marks a milestone for the Emerging Markets Institute as it celebrates its tenth Anniversary. Since its creation, the Institute has brought together practitioners and academics from all over the world and developed new concepts and frameworks to broaden our understanding of emerging markets's role in the global economy. Over the years, it became clear that progress at the level of the nation could not be overlooked. Thus, for this edition of the EMR, we include a ranking of E20 countries based on economic growth, human development and mobile penetration. In it, we better gauge how far they have come, both in relation to one another and to themselves. We likewise include a list of E20 milestones since 2010, illustrating how deeply the world is changing (see Appendix to Part I of this Report).

Figure 3.1. The E20 ranked by nominal GDP 2019 (USD billions).



Note: data for Iran are for 2017.
Source: EMR Research team based on World Development Indicators (https://databank.worldbank.org/source/world-development-indicators), accessed August 2020.

3.2. A decade of growth and poverty reduction

Most of the E20 weathered the 2008 GFC better than their advanced economy counterparts, touting robust economic performance in the decade, 5.2% on average. By comparison, the growth rate of the G7 only barely reached 1.9%. Growth for the E20, however, skewed slightly lower than that of the preceding decade, reflecting a slowdown in the second half of the 2010s due to a botched recovery from developed countries, sharp declines in commodity prices,[13] and political troubles in Latin America. Asia, where markets like Bangladesh, China, India, Indonesia, Malaysia, Philippines, and Turkey boasted average annual growth rates exceeding five percent, should be credited with the most impressive performance, whereas Latin America, which fell behind by decade's end, should be singled out for its reversal of fortunes (Table 3.1).

Taken together, the resilience of the E20 measured against the backdrop of sluggish recovery from developed economies speaks to the ongoing uptick in contribution by emerging markets to global output. By decade's end, the E20 accounted for nearly half of global GDP, dwarfing the 38 percent it laid claim to at the outset[14]. Through it all, emerging economies came to account for half of the 20 largest economies in the world, and nearly half of the 5 largest with China securing its second position as early as 2012 and India clinching a spot as the fifth largest by 2019 (Table 3.2).

At USD14 trillion, China's GDP, a third of US GDP at the start of the decade, now comes to a staggering two-thirds only ten years later. The growth rate of the Chinese economy slightly throttled since 2013-2014. Yet, still averaging 7.7% on average during the 2010s (Table 3.1), it remains impressive given the challenge sizeable economies assume in extending high growth rates for long periods. By 2018, at a total market value equivalent to US GDP in 2004, China scored a rate nearly twice (6.6%) that of the United States during that same year (3.8%).

The remarkable rise of the Chinese economy, its inroads in technology and global business, and its achievements far beyond (see below) beg the question: Is China still an emerging economy? There is admittedly much that sets China apart worldwide and among emerging economies. However, it is worth still putting its trajectory in perspective, given its GDP per capita stands at only 15 percent of US numbers. Even now, it is ranked 68th at USD 10,262, with 373 million still living below the USD5.50 a day poverty line as of 2019 (World Bank, 2020a). On this basis, and while recognizing the singularity of China, we kept it among the E20 for the time being.

[13] Starting in mid-2010s, the price of the Brent oil went on a downward trend; it reached 61$ in December 2019, i.e. about half its level in 2011.
[14] On a ppp basis, based on World Bank GDP data.

Table 3.1. E20 and G7, GDP growth and poverty rates, 2010-2019.

	GDP growth				GDP nominal per capita		Extreme poverty* ratio		Poverty** ratio	
	2000-2009	2010-2019	2010-2014	2015-2019	2010	2019	2010	2018	2010	2018
Asia (only E20)	**7.0%**	**6.4%**	**7.0%**	**5.8%**						
China	10.3%	7.7%	8.6%	6.7%	4,550	10,262	11.2	0.5 (2016)	53.4	23.9 (2016)
India	5.4%	6.7%	6.6%	6.9%	1,358	2,104	31.1 (2009)	10.4 (2017)	90.6 (2009)	86.8 (2011)
Indonesia	4.2%	5.4%	5.8%	5.0%	3,122	4,136	15.7	4.6	77.8	56
South Korea	3.5%	3.3%	3.8%	2.7%	23,087	31,762	0.5	0.2 (2012)	1.5	1.2 (2012)
Malaysia	3.8%	5.3%	5.8%	4.9%	9,041	11,415	0.6 (2008)	0.01 (2015)	16.7 (2008)	2.7 (2015)
Philippines	3.8%	6.4%	6.2%	6.6%	2,217	3,485	10.9 (2009)	6.1 (2015)	61.4 (2009)	55.1 (2015)
Thailand	3.5%	3.6%	3.8%	3.4%	5,076	7,808	0.1	0.01 (2018)	17.8	8.4
Iran**	3.7%	0.6%	1.0%	0.3%	6,600	4,699	1 (2009)	0.3 (2015)	13.1 (2009)	12.9 (2017)
Saudi Arabia	3.0%	3.4%	5.3%	1.5%	19,263	23,140	-	-	-	-
Turkey	3.8%	5.8%	7.6%	4.1%	10,672	9,042	0.8	0.1	15.9	8.5
Pakistan	3.7%	3.9%	3.4%	4.5%	987	1,285	8.3	3.9 (2015)	85	75.4 (2015)
Bangladesh	4.5%	6.8%	6.1%	7.4%	781	1,856	19.6	14.8 (2016)	87.7	84.5 (2016)
Lat.Am (E20 only)	**2.7%**	**2.1%**	**3.5%**	**0.7%**						
Argentina	2.9%	1.3%	2.9%	-0.3%	10,386	10,006	2.2	1	12.7	12
Brazil	2.8%	1.3%	3.4%	-0.6%	11,286	8,717	5.4 (2009)	4.4 (2017)	27.4 (2009)	19.8
Chile	3.3%	3.3%	4.6%	2.0%	12,808	14,896	1.3 (2009)	0.3 (2017)	15.5 (2009)	3.6 (2017)
Colombia	3.4%	3.7%	5.0%	2.4%	6,337	6,432	7.7	4.1	38.3	28.2
Mexico	1.0%	2.7%	3.3%	2.1%	9,271	9,863	4.6	1.7	33.7	22.7
Africa (E20 only)	**5.4%**	**3.2%**	**3.9%**	**2.2%**						
Nigeria	6.5%	3.6%	6.1%	1.2%	2,292	2,230	53.5 (2009)	39	92.1 (2009)	92
South Africa	2.9%	1.7%	2.6%	0.8%	7,329	6,001	16.5	18.7 (2014)	56.2	56.9 (2015)
Egypt	4.0%	3.8%	2.8%	4.8%	2,645	3,020	1.7	3.2 (2017)	68	72 (2017)
Europe (E20 only)	**5.1%**	**2.3%**	**3.0%**	**1.6%**						
Poland	3.4%	3.6%	3.0%	4.3%	12,600	15,595	0.3	0.4 (2017)	3	1.4 (2017)
Russia	3.9%	1.9%	3.1%	0.8%	10,675	11,585	0.1	0	4	2.3
E20	**5.9%**	**5.2%**	**5.9%**	**4.6%**						
Canada	2.5%	2.2%	2.6%	1.7%	47,448	46,195	0.2	0.5 (2013)	0.5	0.7 (2013)
France	0.9%	1.4%	1.2%	1.6%	40,638	40,494	0.1	0.1 (2012)	0.3	0.1 (2017)
Germany	0.3%	2.0%	2.2%	1.7%	41,532	46,259	0 (0)	0 (2016)	0.2	0.5 (2016)
Italy	-0.1%	0.2%	-0.5%	1.0%	36,001	33,190	1.3	1.4 (2013)	2.5	3.2 (2017)
Japan	0.2%	1.3%	1.6%	1.0%	44,508	40,247	0.5 (2008)	0.7 (2013)	0.5	1.2 (2013)
U.K.	1.2%	1.9%	1.9%	1.8%	39,436	42,300	0.1	0.2 (2012)	0.6	0.5 (2016)
U.S.	1.4%	2.3%	2.1%	2.4%	48,468	65,281	1	1.2 (2016)	2	2 (2016)
G7	**1.5%**	**1.9%**	**1.8%**	**1.9%**						

* Defined as less than 1.90 USD a day.

** Defined as less than 5.50 USD a day.

Source: EMI Research team based on data from World Development Indicators (https://databank.worldbank.org/source/world-development-indicators), and World Bank, Poverty and Equity Briefs (https://www.worldbank.org/en/topic/poverty/publication/poverty-and-equity-briefs) for the latest E20 poverty ratios, both accessed August 2020.

Table 3.2. Top 20 economies in 2010 and 2019.

Top 20 Economies (2010)	Nominal GDP (billion USD)
U.S.	14,449
Japan	5,231
China	**5,102**
Germany	3,398
France	2,690
U.K.	2,411
Italy	2,191
Brazil	**1,667**
Spain	1,486
Canada	1,371
India	**1,342**
Russia	**1,223**
South Korea	**944**
Australia	928
Mexico	**900**
Netherlands	868
Turkey	**645**
Switzerland	542
Indonesia	**540**
Belgium	481

Top 20 Economies (2019)	Nominal GDP (billion USD)
U.S.	21,428
China	**14,343**
Japan	5,082
Germany	3,846
India	**2,875**
U.K.	2,827
France	2,716
Italy	2,001
Brazil	**1,840**
Canada	1,736
Russia	**1,700**
South Korea	**1,642**
Spain	1,394
Australia	1,393
Mexico	**1,258**
Indonesia	**1,119**
Netherlands	909
Saudi Arabia	**793**
Turkey	**754**
Switzerland	703

Note: In red: E20 countries; in blue: G7 countries.

Source: EMI Research Team based on World Bank database (https://data.worldbank.org/) accessed in August 2020.

A. Poverty reduction

In the 75 years since its establishment, the United Nations has led global efforts to eradicate poverty. Such efforts were given new impetus in 2000 when the United Nations adopted the Millennium Development Goals (MDGs) – a set of development goals for 2015. One of its key objectives was to halve the share of population living on less than $1.25 a day worldwide. By 2010, this goal was already met (UNDP 2015), reflecting significant progress, particularly in Brazil, China, India, Indonesia, and Pakistan (Kose and

Ohnsorge, 2019). By 2015, following years of intense preparation, the UN General Assembly adopted the Sustainable Development Goals (SDGs) to succeed the MDGs. The eradication of poverty would persist as the number one goal.

During the 2010s, poverty reduction continued to record good progress. Though much less pronounced than during the 2000s, poverty reduction in the decade that followed remained significant, including in a number of emerging economies. China, Indonesia, and Philippines, for instance, would see further important reductions in those falling below the extreme poverty line, as defined by the World Bank (USD1.9 per day) (Table 3.1). In Latin America, given the share of population living in extreme poverty was already quite limited, the trend among those living under the World Bank poverty line (USD5.50) is more telling. Here, significant improvements were made between 2010 and 2018 in Brazil, where poverty fell (from 27 to 20 percent), in Colombia (from 28 to 20 percent), and in Mexico (from 34 to 23 percent). In Chile, the ratio declined to less than four percent by 2017, a quarter of what it commanded a decade earlier (Table 3.1).

Notwithstanding such progress, as we celebrate the 75th Anniversary of the United Nations, the world must level with itself that the fight against poverty is far from over. For some countries, including a handful of emerging economies, extreme poverty numbers still scream. In Sub-Saharan Africa, by the late 2010s the extreme poverty ratio still exceeded 40 percent (World Bank, 2020c). It was as high as 19 percent in South Africa in the mid-2010s, and close to 40 per cent in Nigeria, for instance (see Table 3.1). Results were borne, but the situation remains fragile, with extreme poverty expected to rise for the first time in twenty years (on the order of 100 million people), according to the World Bank (see Chapter 4 on the COVID crisis).

B. Ranking the E20 – giving them their due for progress made[15]

The E20 encompasses a diversity that eludes a one-size-fits-all explanatory model. Juxtaposing them with developed markets would not do justice to the progress made by these economies individually, in particular to those still further behind in development. Data on GDP growth can also fall short in accounting for the breadth of their achievements. To better gauge how far E20 economies have come (both individually and comparatively), for this EMR, we feature our first edition of *the E20 ranking*. It measures economic, technological and social progress based on average annual GDP growth; mobile penetration; and the human development index (HDI) a composite index published by UNDP and combining GNI per capita, education level, and life expectancy.

We compute the percent change in each indicator for each country over the last decade and calculate the median and quartile ranges for GDP, mobile penetration, and HDI data, individually. Each country is given a four-star rating for each indicator as follows:

☆ ⇒ Below Q1
☆☆ ⇒ Equal or above Q1, Below Median
☆☆☆ ⇒ Equal or above Median, below Q3
☆☆☆☆ ⇒ Equal to Q3 or above

Finally, we combine the three individual star rankings to assess the overall rating, weighted as follows: 60 percent for average annual GDP growth and 20 percent each for mobile penetration and HDI. In all, each country would receive a star ranking of 1-4 based on performance from 2009 to 2019 and on performance relative to other emerging economies.

In this ranking, many Asian countries feature in top positions. Bangladesh ranks first (together with China). Beyond improvement in its growth rate and mobile penetration, Bangladesh became a "Medium Human Development" country in 2013; till then it was classified in the Low Human Development Index category. It recorded one of the highest gains in the UNDP Human Development Index, vaulting over seven of its peers during the 2012-2017 period. The Philippines would also stand out, with spurts of growth in the 2010s powering its move up HDI indices, joining the High Human Development Index Category of UNDP by 2018. Meanwhile, three of the five E20 Latin American countries (Argentina, Brazil, and Mexico) found themselves at the bottom of the list, due not only to much more modest growth but also to dimmer progress in the HDI. In the case of Argentina, HDI (with high education and life expectancy indicators) proved already quite high at the start of the decade, partially accounting for the lackluster results.

It is worth stressing that this 4-star ranking is primarily a measure of growth. Many of the economies that started off the decade with higher levels of development and showed more tempered rates of growth would therefore underwhelm (South Korea,

[15] This section builds upon the work undertaken by Mihika Badjate and Andrew Lim, and the comments made by the EMI research team.

Argentina, and Poland are cases in point). Ultimately, this ranking rewards markets that made the most dramatic displacements from their previously held positions in a decade bookended by crises.

Table 3.3. E20 ranking.

☆	☆☆	☆☆☆	☆☆☆☆	**Ranking***
Russia 1.2	Malaysia 2.4	Nigeria 3.4	China 4	China 4
Brazil 1.2	Poland 2.4	Thailand 3.2	Bangladesh 4	Bangladesh 4
Argentina 1	Chile 2.2	Pakistan 3.2	India 3.6	India 3.6
	South Africa 2	Colombia 2.6	The Philippines 3.6	The Philippines 3.6
	South Korea 1.8	Egypt 2.6	Indonesia 3.6	Indonesia 3.6
	Iran 1.8		Turkey 3.6	Turkey 3.6
	Mexico 1.8			Nigeria 3.4
	Saudi Arabia 1.8			Thailand 3.2
				Pakistan 3.2
				Colombia 2.6
				Egypt 2.6
				Malaysia 2.4
				Poland 2.4
				Chile 2.2
				South Africa 2
				South Korea 1.8
				Iran 1.8
				Mexico 1.8
				Saudi Arabia 1.8
				Russia 1.2
				Brazil 1.2
				Argentina 1

Source: EMI Research team, based on GDP per capita data (World Development Indicators, https://databank.worldbank.org/source/world-development-indicators, accessed August 2020), Human Development Index UNDP (http://hdr.undp.org, accessed August 2020) and ITU data on mobile penetration (https://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx, accessed July 2020).

3.3. Emerging economies as major trade and investment partners

Beyond strengthening their production nodes in the global economy, emerging markets would also consolidate their position as major trade and investment partners, playing an increasingly central role in global value chains (Gereffy 2015). In 2019, the E20 accounted for about thirty percent of global exports and imports. Beyond their role as major commodity exporters, they would score gains in manufacturing exports, including high-tech products. In Thailand, China, Korea, Malaysia, and Philippines, high-tech products would comprise ever greater shares of total manufacturing exports, reaching respectively 23%, 31%, 36%, 52%, and 60% of such exports in 2018 (World Bank development indicators 2020).

In terms of FDI, the E20 retained its position as key destinations for inward FDI, but also advanced in the domain of outward investment. Led by China, their rise as key global investors stood among the distinctive developments of the past decade. For instance, while FDI inflows to the E20 hovered between USD430 and 480 billion at around 30 percent of global FDI inflows, their outflows enjoyed an almost continuous upward trend. Their share in global outward FDI flows rose: reaching at most 13% during the 2000s, they exceeded 20 percent by the late 2010s (Figure 3.2 and Figure 3.3). Throughout much of the decade, three E20 countries, China, Korea and Russia, featured among the Top 15 global investors. Particularly remarkable would be the Chinese trajectory: ranked eleventh in 2008, only to become one of the largest global investors by decade's end.

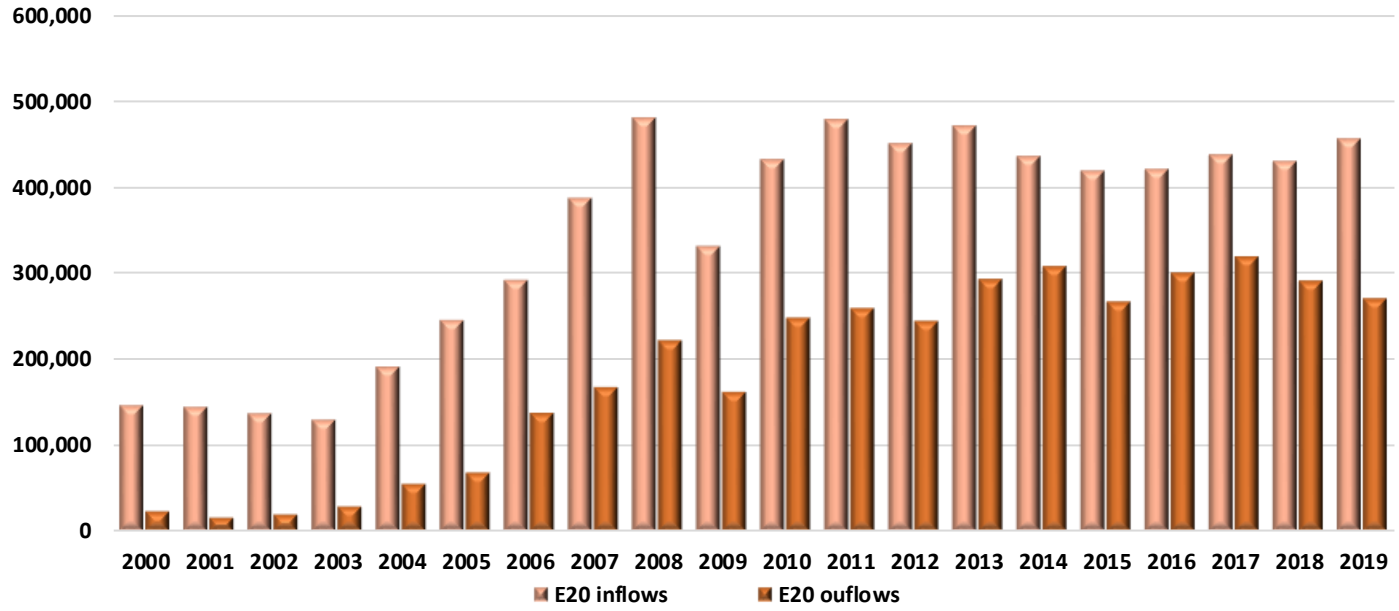
The 2010s also witnessed a shift in the direction of emerging market OFDI towards advanced economies, (Casanova and Miroux 2017, 2018 and 2019). For instance, greenfield FDI remains predominantly of South-South nature, but the U.S. became the first destination of FDI greenfield projects for the E20 as a whole. It ranks first as country of destination for China, second for India and Brazil, and third for Korea over the decade. Chapter 2 examines in detail greenfield FDI by emerging markets.

The rise of E20 global acquirers can be traced back to the 2008 Global Financial crisis, a turning point for global OFDI. The surge, fueled by China, was particularly pronounced in 2016-2017, when announced E20 M&A deals roared to 250 USD billion on average. At the end of the decade, they were about twice their levels ten years prior, with advanced economies increasingly targeted (Casanova and Lourdes 2017 and 2018).

The outward FDI expansion of emerging markets ballooned partly thanks to exceptional M&A deals, which targeted previously untouchable giants (e.g., the acquisition of Syngenta by China National Chemical Corporation) and household names (e.g., Volvo by Geely, GE appliances by Haier, Cerruti by Trinity Limited, Motorola Mobility by Lenovo, Club Med by Fosun, AMC theater by Wanda Group, among others), a move that would have stretched the imagination before the GFC. (See also Chapter 2).

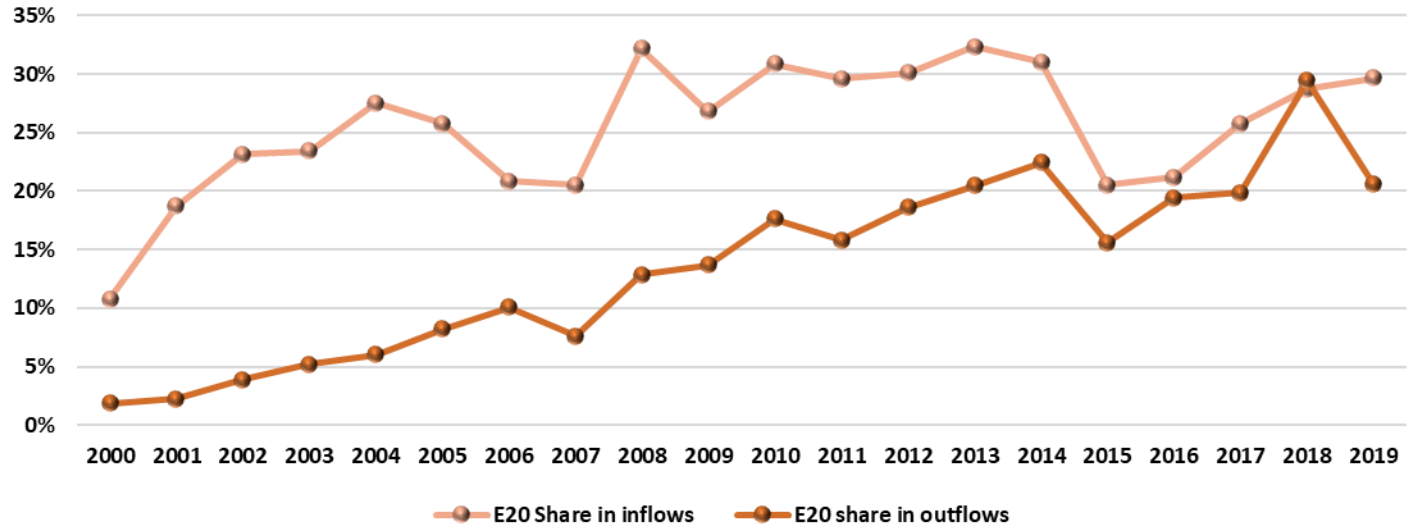
The 2010s were also characterized by the consolidation of the presence and power of E20 firms in the global economy, a phenomenon at the center of all the Emerging Market Multinationals Reports. Indeed, as seen before in this Report, a third of the Fortune Global 500 is now taken up by emerging market firms and the number of Chinese firms would exceed in 2020 that of US ones (124 vs. 121). As well, a number of emerging market firms have done remarkably well at expanding beyond their borders and transforming into global enterprises. Chapter 1 details several contributors to this new, more expansive, horizon now set for emerging market firms.

Figure 3.2. E20 FDI flows, 2000-2019, USD millions.



Source: Authors, based on UNCTADStat, https://unctad.org/en/Pages/statistics.aspx, accessed August 2020.

Figure 3.3. E20, world share in per cent of global FDI inflows and outflows, 2000-2019.



Source: Authors, based on UNCTADStat, https://unctad.org/en/Pages/statistics.aspx, accessed August 2020.

3.4. Moving ahead on education, technology and innovation

Beyond the increased visibility on the global business scene, emerging markets surfaced as key protagonists of technology and innovation. They forcefully rose as potent innovators, and technological leaders, drawing forth significant change in the global innovation and technology landscape.

This transformation is observable in indicators such as innovation indices or patents and in efforts made by emerging economies in R&D investment, education expenditures and key infrastructure such as ICT. E20 governments, increasingly aware of the role of technology and innovation for growth and development, would intensify their efforts to enhance science, technology, and innovation (STI) capabilities. At the company level, an increasing number of emerging market firms would feature among the largest R&D spenders in the world, as seen later in this section.

A. Moving up the innovation ladder: the example of GII rankings

In the 2020 ranking of the Global Innovation Index (GII) - an Index published in collaboration between Cornell University, INSEAD, and the World Intellectual Property organization (WIPO) - advanced economies still dominate in the top ranks, but eight E20 economies now feature among the Top 50: Korea, China, Malaysia, Poland, Thailand, Russia, India and Philippines (Dutta, Lanvin and Wunch-Vincent, 2020), compared to only five a decade earlier (globalinnovationindex.org). In 2020, Korea ranked 10th and China 14th, above Canada and Japan and just below France and Israel (Table 3.4) while India and Thailand entered the top 50 (respectively 44th and 48th). Latin America lagged behind, with large economies such as Mexico, Brazil and Argentina ranking 55th, 62nd, and 80th, respectively. This shift in the innovation landscape also became apparent in other innovation metrics such as patents and number of researchers (see e.g., Cahen, Casanova and Miroux, forthcoming).

Table 3.4. The top 50 countries in the Global Innovation Index (GII) 2020.

	GII 2020 rank		GII 2020 rank
Switzerland	1	New Zealand	26
Sweden	2	Malta	27
United States of America (the)	3	Italy	28
United Kingdom (the)	4	Cyprus	29
Netherlands (the)	5	Spain	30
Denmark	6	Portugal	31
Finland	7	Slovenia	32
Singapore	8	**Malaysia**	**33**
Germany	9	United Arab Emirates (the)	34
Republic of Korea (the)	**10**	Hungary	35
Hong Kong, China	11	Latvia	36
France	12	Bulgaria	37
Israel	13	**Poland**	**38**
China	**14**	Slovakia	39
Ireland	15	Lithuania	40
Japan	16	Croatia	41
Canada	17	Viet Nam	42
Luxembourg	18	Greece	43
Austria	19	**Thailand**	**44**
Norway	20	Ukraine	45
Iceland	21	Romania	46
Belgium	22	**Russian Federation (the)**	**47**
Australia	23	**India**	**48**
Czech Republic (the)	24	Montenegro	49
Estonia	25	**Philippines**	**50**

Source: EMI Team Research based on Global Innovation Index 2020 data (Dutta and al., 2020), https://www.globalinnovationindex.org/, accessed in September 2020.

B. Increased investment in R&D and education

Previous Emerging Market Multinationals Reports have underscored the new place of technology and innovation in many emerging economies (EMR 2016 and 2019). For instance, five E20 countries were among the ten largest R&D spenders in 2018: China (2nd), Korea (5th), India (6th), Brazil[16] (8th) and Russia (9th) (UNESCO, 2020). Four accounted for almost a third of global R&D expenditure, namely China, India, Korea and Russia. Korea's ratio of R&D expenditure to GDP (at 4.8 per cent) amounted to the largest in the world.

[16] Based on GERD on PPP basis; data for Brazil is for 2017 only.

The E20 also oversaw increased deployment in ICT infrastructure throughout the decade, as reflected in the significant increase in internet penetration (Table 3.5).

As part of their drive for technology and innovation, another important objective of emerging markets can be found in the area of talents: to build a skilled workforce and diminish their dependence on external talents and education institutions, many emerging economies have increased their investment in education, and encouraged innovation-focused education initiatives (Lanvin and Evans, 2018 and subsequent editions). Their commitment to skills and talent development can be seen, for instance, in the continued increased in their enrolment ratios (Table 3.5). There has been, in particular, a rapid expansion of higher education's systems in some major emerging economies as shown by trends in the tertiary enrolment ratios.

Table 3.5. Education Enrolment ratios and Internet and Mobile penetration, E20 and G7, 2009 and 2018 (or latest available year).

	Internet penetration		Mobile penetration		Primary education		Secondary education		Tertiary education	
	2010	2018	2010	2018	2010	2018	2010	2018	2010	2018
Asia (only E20)										
China	34.3	54.3 (2017)	62.8	115.5	-	-	-	-	24.2	50.6
India	7.5	34.5 (2017)	60.9	86.9	91.0	92.3 (2013)	-	61.6 (2013)	17.8	28.1
Indonesia	10.9	39.9	87.4	119.3	94.2	93.5	66.6	78.7	24.1	36.3
South Korea	83.7	96.0	102.5	129.7	98.4	97.3 (2017)	94.9	98.0 (2017)	102.8	94.3 (2017)
Malaysia	56.3	81.2	120.0	134.5	96.2	99.6 (2017)	74.3	72.2	37.0	45.1
Philippines	25.0	60.1 (2017)	88.5	126.2	89.9 (2009)	93.8 (2017)	61.0 (2009)	65.6 (2015)	29.6	35.5 (2017)
Thailand	22.4	56.8	106.7	180.2	98.1 (2009)	98.1 (2009)	77.1	77.3 (2015)	24.0 (2009)	49.3 (2016)
Iran**	15.9	70.0	73.3	108.5	96.6	99.7 (2017)	76.3	81.4 (2017)	44.2	68.1 (2017)
Saudi Arabia	41.0	93.3	188.0	122.6	97.1	94.5	73.5 (2009)	96.4	36.6	68.0
Turkey	39.8	71.0	85.4	97.3	96.1	87.9 (2017)	80.9	87.2 (2017)	23.9 (1999)	23.9 (1999)
Pakistan	8.0	15.5 (2017)	55.3	72.6	66.0	67.6	32.5 (2009)	37.4	6.8 (2009)	9.0
Bangladesh	3.7	15.0 (2017)	46.0	100.2	90.5	90.5 (2010)	47.7	66.5	10.9 (2009)	20.6
Lat.Am (E20 only)										
Argentina	45.0	74.3 (2017)	139.6	132.1	98.7	99.2 (2017)	82.1	90.8 (2017)	73.2	90.0 (2017)
Brazil	40.7	70.4	100.6	98.8	95.5 (2009)	96.3 (2017)	78.8 (2009)	81.7 (2017)	37.0 (2009)	51.3 (2017)
Chile	45.0	82.3 (2017)	116.3	134.4	95.5	94.7 (2017)	84.8	88.7 (2017)	67.9	88.5 (2017)
Colombia	36.5	64.1	98.4	129.9	91.9	92.9	75.3	77.5	39.4	55.3
Mexico	31.1	65.8	80.1	95.2	98.1	95.3 (2017)	70.1	81.2 (2017)	27.6	40.2 (2017)
Africa (E20 only)										
Nigeria	11.5	42.0 (2017)	55.1	88.2	-	64.1 (2010)	-	-	9.6	10.2 (2011)
South Africa	24.0	56.2 (2017)	98.4	159.9	88.6 (2005)	87.0 (2017)	66.2 (2005)	71.9 (2017)	-	22.4 (2017)
Egypt	21.6		85.4		95.9	97.0	-	82.8	31.4	35.2 (2017)
Europe (E20 only)										
Poland	62.3	77.5	122.5	134.7	94.6	95.8 (2017)	89.6	94.1 (2017)	74.8	67.8 (2017)
Russia	43.0	80.9	165.7	157.4	94.1 (2009)	95.1 (2017)	-	90.7 (2017)	75.3 (2009)	81.9 (2017)
G7										
Canada	80.3	91.0 (2017)	75.6	89.6	99.9 (2000)	99.9 (2017)	-	99.8 (2017)	61.7	68.9 (2017)
France	77.3	82.0	91.9	108.4	97.4	98.9 (2017)	92.6	94.7 (2017)	54.9	65.6 (2017)
Germany	82.0	89.7	109.4	129.3	88.8	90.1 (2017)	88.1	85.3 (2017)	-	70.2 (2017)
Italy	53.7	74.4	157.9	137.5	97.6	95.7 (2017)	96.3	94.7 (2017)	65.8	61.9 (2017)
Japan	78.2	91.3	95.9	141.4	-	-	-	-	-	-
U.K.	85.0	94.9	120.9	118.4	98.0	99.5 (2017)	96.2	97.1 (2017)	58.9	60.0 (2017)
U.S.	71.7	87.3 (2017)	92.3	129.0	93.4	94.6 (2017)	88.4	92.5 (2017)	92.6	88.2 (2017)

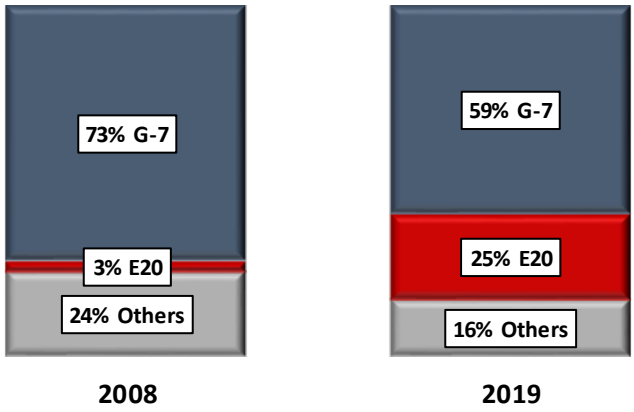
Note: primary and secondary education enrollment: net ratio; tertiary education enrollment ratio: gross.
Source: EMI Research team, based on data from ITU (https://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx, accessed July 2020), UNESCO (http://data.uis.unesco.org/; accessed July 2020) and World Bank (https://databank.worldbank.org/source/world-development-indicators, accessed August 2020).

C. Emerging Market firms increasingly among the largest R&D spenders

Emerging markets firms have been key actors in the changing global technology and innovation landscape. According to the European Commission Industrial R&D Investment Scoreboard[17], E20 firms, largely led by China, accounted for 25 per cent of the number of the 2000 largest global R&D spenders in 2019, a notable leap from the less than five percent just ten years prior (Figure 3.4). Three countries (China, Korea and India) ranked among the Top 10 in number of companies with high R&D spending (Figure 3.5) in 2019. Two E20 firms, the Korean Samsung, and the Chinese Huawei, were among the five largest R&D spenders in the world in 2018-2019, with Samsung even ranking first in 2018.

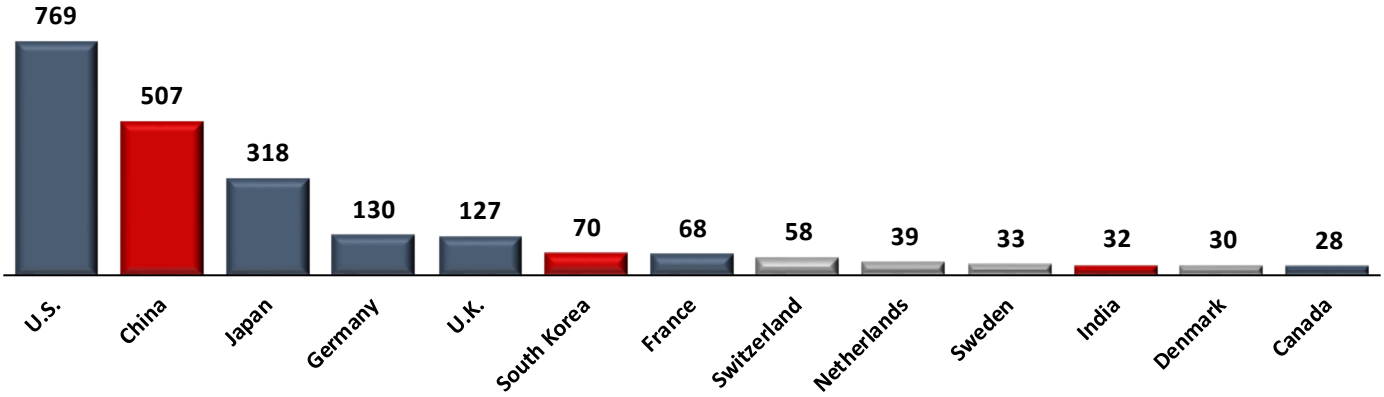
[17] The European Union (EU) Industrial R&D Investment Scoreboard publishes data on the companies that invest most in R&D (https://iri.jrc.ec.europa.eu/scoreboard/2019-eu-industrial-rd-investment-scoreboard#field_report). 2000 firms were ranked in 2008, and 2500 firms in 2019. The comparison between these two year is based on the largest 2000 R&D spenders.

Figure 3.4. Number of companies in the top global R&D spenders and share per group, 2008 and 2019*.



* Based on 2000 firms ranked in the EU Industrial R&D Scoreboard
Source: EMI Research team based on European Commission Industrial R&D Scoreboard (https://iri.jrc.ec.europa.eu/), accessed in March/20.

Figure 3.5. Top 10 countries by number of companies in the top R&D spenders, 2019



Source: EMI Research team based on European Commission Industrial R&D Scoreboard 2019 ranking (https://iri.jrc.ec.europa.eu/), accessed in March/20.

D. Some telling examples

A number of events vividly illustrate the irrefutable place of emerging markets as innovators and technology leaders. China again stands apart, one of the only countries in the position to send humans to space, robots to the dark side of the moon, and a recognized leader in 5G, mobile payments, electric vehicles, and batteries, UHV (Ultra High Voltage) technology, and Artificial Intelligence. With major investments in satellites and positioning technology, it launched in 2020 the last satellite completing its Beidou navigation network, a rival to the American GPS and the European Galileo, and now occupies a seat among the elite group of countries laying claim to their own navigation system.

Other emerging economies would make significant inroads in innovation and technology. They too authored new products and services, developed novel production processes or introduced innovative business models in a variety of sectors or industries such as medicine, pharmaceuticals, health services, nuclear technology, space, mobile telecommunication, and e-commerce, among others (see Cahen, Casanova and Miroux, forthcoming). The following section pays heed to these feats through the prism of the e-commerce sector, a vivid illustration of the innovation drive of emerging economies.

E. The case of e-commerce

The trajectory of companies such as the Chinese Alibaba, Argentinian Mercado Libre or African Jumia exemplifies the breakthroughs emerging economies delivered upon in the global technology and innovation landscape (Casanova, Miroux and Fichenlstein, forthcoming). These E20 powerhouses transformed their challenges into opportunities by innovating upon payment systems and business models to service their customers, only to find themselves at the forefront of technological development in online retail and financial services, and in the digital economy more broadly.

Alibaba, founded in 1999 with 17 employees, is a prime example. By the first quarter of 2020, it had become a multinational conglomerate, operating in e-commerce, retail, mobile payments, artificial intelligence, digital media, and entertainment, with over 726 million annual active customers. In e-commerce, it stands out, fending off competition from even top global competitors. Its volume of sales now stands at twice that of Amazon, and as a world leader in mobile payments, in 2014 it ushered in the then-largest initial public offering (IPO) in world history (USD25 billion).

Alibaba established its leadership in mobile payments with Alipay, introduced in 2004. Based on an escrow model, this payment system replaced cash on delivery (COD). The system differed from mobile payment service competitors as it was free for small users, simply acting as a "middleman." It also revolutionized the transaction market in China by making use of QR codes. By 2013, Alipay became the world's largest mobile payment service company with over one billion users, even trumping Paypal. It pioneered mobile payments in China for rent, tickets, hospital bills, and taxes, just to name a few.

The giant would expand beyond mobile payment, offering a variety of online financial services from lending and asset management to insurance, including for instance loans for small businesses and money market accounts. By 2019, its online financial services surpassed the mobile payment segment in revenue and transformed Alipay from a mere mobile payment platform into a one-stop online financial solution provider, with its own credit assessment scoring. Its wide range of services distinguishes Alipay from other mobile payment systems such as Apple Pay or Google Pay.

Alibaba created a granular and wide-ranging ecosystem, where e-commerce, retail, and other services would interconnect. The rapid incorporation of new technology fueled Alipay's expansion. Through it all, Alibaba would redefine itself at the cutting-edge of innovation in mobile payments and AI. In 2019, for instance, Alipay launched a new technology called "Smile and Pay," which utilizes AI and facial recognition technology to verify the customer's identity.

Mercado Libre, established in 1999 in Argentina, made history as Latin America's largest unicorn, operating as the e-commerce leader in 18 countries. In 2019, it reported USD2.3 billion in revenue and USD28 billion in market capitalization. It proved itself resilient, navigating a turbulent landscape marked by political and economic instability. With solid technology and a well-developed base of buyers and sellers, it scored victories through innovation and the provision of quality services that would patch up an otherwise fragmented market landscape.

Delivery and payments stood out among the key challenges faced by Mercado Libre. The postal system in Latin America, largely plagued by inefficiencies, prompted Mercado Libre to opt for a "platform mode" for its operations, connecting buyers and sellers directly. In a market landscape characterized at the turn of millennium by limited use of bank accounts and credit cards, Mercado Libre authored its own solution—Mercado Pago. Initially emulating eBays' Paypal, Mercado Pago swiftly evolved. It partnered with financial institutions to collect money deposited by users and send it to buyers once the transaction was confirmed. It completed its offers with services such as payments to friends, investment options, and small short-term loans, among others. Mercado Pago is now even a means of payment in brick-and-mortar stores and other online marketplaces, suggesting that the firm is on track to play the role of a full-fledged digital bank.

A distinctive feature of Mercado Libre resides in its full proprietary control of its technological platform. Over the years, it would transform into an integrated payments, sales and logistics platform, heavily investing in fintech as well as technologically advanced facilities and distribution centers. The entry of a giant like Amazon in Brazil and Mexico may prove a challenge for Mercado Libre. Still, the company's deep knowledge of the Latin American environment and its focus on innovative products and business solutions stack in its favor as it fends off growing international competition.

Jumia, the African e-commerce platform and the continent's first unicorn, was founded in 2012. Originally based in the Nigerian market, Jumia soon expanded to eleven African markets (by the end of 2019), proving to be the continent's largest e-commerce platform with 6.8 million annual active customers by April 2020. The company faced an array of challenges in internet access, delivery, and payment systems. These bottlenecks loomed large, given that many African markets qualify as low-income economies. The continent bears the lowest internet penetration ratio; many regions lack mailing address systems and suffer from deficient transport and retail banking infrastructure. Three quarter of the Sub-Saharan population, for instance is deprived of a bank account.

Jumia would innovate to adapt to such market conditions. For instance, it opened up customer adoption centers where users could avail themselves of connected laptops and tablets, place orders and familiarize themselves with online shopping. It developed Jumia Logistics to allow for the delivery of packages. Initially using its own delivery network based on a fleet of motorcycles, it now outsources about 80 percent of delivery to small independent businesses. It progressively evolved its business model: while sourcing its own inventory, it also developed Jumia marketplace, enabling vendors to register on the platform and use the firm's resources to do online retail.

To overcome its payment challenge, Jumia first resorted to payment on delivery. Then, in 2016, following the example of Alibaba, it set up its own payment system, Jumia Pay. A key element in the firm's growth and diversification strategy, Jumia Pay would grant the company the means of introducing additional online services such as cellular data recharging, a vital service in low-income countries where pre-paid models are preferred, and bill payment. Jumia would thereby foray into consumer credit capability assessment and may establish, like Alibaba, its own credit scoring infrastructure. It too would diversify into a variety of segments, such as food and meal delivery (Jumia Food), hotel and flight booking (Jumia Travel), classified ads, and real estate. And through a number of innovations, such as the incorporation of a mobile app in its digital products and other functionalities, it now claims its own ecosystem by dint of which customers stay connected.

Admittedly, Jumia's expansion, while brisk, has not run its course without setbacks. The struggle to generate profits, not uncommon to start-ups, is among one of the firm's recurring problems; competition from other marketplaces is yet another and it remains to be seen what the future holds for the company. Still, through innovation and diversified online services, Jumia made an indelible mark on Africa's budding digital economy.

3.5. Increasing soft power

Just as the decade saw a consolidation of economic power for emerging economies, it also bore the stamp of a shift in global politics. Admittedly, China is at the heart of this phenomenon, but its rise, challenging the global order that prevailed since the end of World War II, would further empower other emerging markets.

For instance, by 2014 and 2015, new multilateral development banks like the New Development Bank (NDB) with the BRICS countries and the Asian Infrastructure Investment Bank (AIIB), were launched, along with the Chinese-led Belt and Road Initiative in 2013. These developments, examined in detail in previous reports and publications (Casanova and Miroux, 2018, 2019, and 2020), have endowed emerging economies with a soft power not yet experienced until now.

For one, the governance structure and power distribution of both the NDB and AIIB radically depart from those of multilateral institutions such as the IMF and the World Bank, the unrivaled incumbents of development finance over the better part of a century. At the World Bank, the G-7 together holds close to 41 percent of voting shares. Meanwhile, at the NDB, its founding members, the BRICS, share the totality of the voting shares equally (Box). According to the NDB charter, while new members can join the Bank, the voting shares of its founders cannot fall below 55 percent, and those of emerging and developing countries cannot dip below 80 percent[18], meaning emerging and developing economies are by design primed for a dominant role in the institution even as its membership evolves.

Even more telling is the case of the AIIB, now a broad-based multilateral institution comprising (as of May 2020) eighty-two member countries from all regions, including Europe and North America (Canada) (Box). Its Asian members still hold the majority of the votes, with China alone accounting for 27 percent of the voting power and India 8 percent. Comparatively, China and India's shares in the World Bank total 4.7 and 3 percent, respectively. Among other investment priorities, the AIIB, apportioned to date as much as 19.6 USD billion in infrastructure projects.

The Belt and Road Initiative (BRI), unveiled by China in 2013, is the flagship frontier of China's evolving soft power, reshuffling longstanding alliances and contributing overall to the ongoing shift in the balance of power globally. When launched, the plan was set to promote maritime and inland trade via infrastructure development projects through a series of corridors linking Asia, Europe, and

[18] NDB Articles of Agreement, Article 8

Eastern Africa. The initial vision later expanded to include countries in West and Central Africa, as well as Latin America and the Caribbean (Casanova and Miroux, 2020). When the initiative was launched, it covered about 60 members, and by September 2020, that number had grown to 138[19].

The BRI is one of the largest infrastructure development plans in history, with most financing estimates pointing to a USD 1 trillion price tag (Casanova and Miroux, 2020). Its benefits and drawbacks for countries taking part of the initiative have not escaped intense debate. At the second BRI Forum in Beijing in April 2019, China took a number of decisions to address concerns, especially regarding the impact of BRI loans on the debt of recipient countries or environmental sustainability. How far this adjustment will go remains to be seen, as does the impact of the COVID crisis on the implementation of BRI projects, but it stands at the center of China's new foreign policy.

The NDB, AIIB and the BRI all focus on infrastructure, a vital sector for growth and development. These initiatives are poised to leave a mark on developing regions, whose infrastructure needs have remained desperately unfulfilled despite efforts by the international community. Providing an alternative to the traditional channels of development finance –such as the IMF, World Bank, and other development institutions - they can be powerful tool of influence, contributing to a shift in economic and political power towards emerging economies, especially China.

Asian Infrastructure Investment Bank

Development bank

The AIIB has 82 members, 45 regional and 37 non-regional, and 20 prospective members, as of July 2020. The state with more voting power is China (26.64%), followed by India (7.63%), and Russia (6.00%). The original authorized capital for the bank is USD 100 billion and paid-in capital is USD 20 billion. As of July 2020, the bank has approved loans for USD 19.6 billion for 87 projects. Loans fully financed by the AIIB account for 46%, while the remaining 53% is part of projects co-financed with other institutions. Sovereign loans add up to 69%, leaving 31% for non-sovereign borrowers. Out of the approved amount, 11.25 billion USD have been already raised by the bank and are available for disbursement.

Working as a development bank, the AIIB seeks to improve social and economic outcomes all over Asia. Their focus is the development in infrastructure and productive sectors, such as "energy and power, transportation and telecommunications, rural infrastructure and agriculture development, water supply and sanitation, environmental protection and urban development and logistics".

Recent Developments: As a response to the recent COVID-19 crisis, the bank has been one of the actors supporting governments across Asia for fighting the covering of public health, protection of vulnerable groups, support for businesses or as a fiscal stimulus measure. Loans have been approved for several countries: Indonesia (USD 1 billion), India (USD 750 million), Philippines (USD 750 million), Bangladesh (USD 250 million), Mongolia (USD 100 million).

Credit Rating: The AIIB has been classified as a AAA and A-1+ credit issuer for long-term and short-term lending by S&P Global. Moody's and Fitch ratings have also classified the bank as AAA.

International Presence: Even though most of its shares are hold by several countries in Asia, 23.66% are hold by members out the region. It is to be highlighted that all countries that have AAA credit rating are members of the bank, as well as 17 members of the G20, excluding Japan, Mexico, and the United States.

Revenue (2019): USD 487.8 million

Assets (2019): USD 22,631.6 million

Net Income (2019): USD 400.9 million

HQ: Beijing, China

Foundation year: 2015

Employees: 279

Ownership: Led by China

Industry: Multilateral Development Bank

Source: EMR Research team based on data and information from Standard & Poor's Capital IQ (https://www.capitaliq.com), Orbis (https://www.bvdinfo.com), Business Today (https://www.businesstoday.in/) and AIIB 2019 report (https://www.aiib.org/en/news-events/annual-report/2019/home/index.html), accessed July 2020.

[19] Number of countries that have signed a memorandum of Understanding under the BRI (https://green-bri.org/countries-of-the-belt-and-road-initiative-bri)

New Development Bank

Development bank

Formerly known as the BRICS Development Bank, the NDB was created as an initiative from the BRICS to boost development of the member states. The initial authorized capital is USD 100 billion, subscribed capital is USD 50 billion with USD 10 billion paid-in capital. Out of this amount, USD 6.2 billion has been received by the bank as of December 2019.

The bank has shown accelerated growth, totaling approved loans worth USD 15.25 billion for 53 projects as of December 2019, with USD 7.19 billion approved for 22 projects within 2019 only. From these amounts, USD 915 million have been disbursed in 2019, adding up to a cumulative total of USD 1.54 billion disbursed as of December 2019. Out of the total, 79.92% of the approved amount has been directed to sovereign loans.

The greatest borrowers of the bank are China, India, and Russia with USD 4.22 billion, USD 4.08 billion and USD 2.72 billion in approved loans, respectively.

Recent Developments: As a measure to help its member countries from the effects of the COVID-19 pandemic, the bank established an Emergency Assistance Facility. Within this Emergency Assistance Program, it has provided loans to China (USD 285 million), India (USD 1 billion) and South Africa (USD 1 billion) to finance sustainable development activities, procuring personal protection equipment to health care workers or provide support on governmental measures like income relief. In order to finance the COVID-19 loans to the members, the bank issued a 3-year bond in April for USD 705.59 million (i.e., CNY 5 billion), a 3-year bond that raised USD 1.5 billion in June and a 5-year bond for USD 285 million (i.e. CNY 5 billion).

Credit Rating: The bank has a long-term credit rating of AA+, and a short-term credit rating of A-1+ assigned by S&P Global. Also, they have been classified by Fitch ratings as AA+ and F1+ issuers for long-term and short-term, respectively.

Internationalization: Headquartered in Shanghai, the bank was established with the cooperation of Brazil, Russia, India, China, and South Africa (BRICS).

New Development Bank

Revenue (2019): USD 219.1 million

Assets (2019): USD 11,820.6 million

Net Income (2019): USD 222.9 million

HQ: Shanghai, China

Foundation year: 2014

Employees: 161

Ownership: BRICS member states

Industry: Development Bank

Source: EMI Research team based on data and information from Capital IQ (https://www.capitaliq.com), and NDB 2019 annual report (https://www.ndb.int/annual-report-2019/), accessed July 2020.

3.6. Milestones

With the first Emerging Market Multinationals report in 2016, we paid heed to the scope of the change wrought by emerging markets in the global economy. As we close out the decade, we see how significant the evolution became across a variety of fronts. Looking back, events beyond the realm of global economics and geo-politics (in science, sports, culture, international relations, for instance) exemplify this transformation. In an Appendix, we have included some of these milestones seen in a global perspective (See Appendix to Part I in this Report).

Progress at the country-level itself would be set against global developments and here not all E20 economies performed equally. Yet, they all witnessed milestones, however small individually, that set in motion the profound transformation of the global landscape during the past decade. We have hence included in above-mentioned Appendix milestones of the decade for each of the E20 countries.

As for the selection of milestones, it should be noted that our intention is not to be exhaustive, but to provide vivid examples of how emerging economies became so consequential, embracing this juncture as true agents for change.

3.7. A decade of reckoning and deep transformations

The 2010s was a decade of reckoning and deep transformations. Many trends and events made us increasingly aware of the relevance of emerging markets in the global economics, in geopolitics and as innovators and technological leaders.

In retrospect, a few observations are in order. A forceful drive for growth and development animated many emerging economies. In some, in particular in Asia, determined and coherent medium to long-term policies played a key role in their achievements. There is indeed nothing worse for business than ever-changing rules at the whim of the political mood of the times. A

focus on innovation and technological catching up also proved instrumental. All this is bringing back to the fore the use of industrial policies, a concept that long fell out of favor.

The results also suggest a paradigm shift is afoot. In many of the emerging economies examined, we observed the crucial role of a dynamic private sector. Its performance will need to be judged beyond its own terms and in relation to countrywide priorities, from the challenges of poverty to the conundrum of more sustained growth and development.

References

BrandDirectory (2020), Top 500 Global Brands 2020, accessed July 2020 https://brandirectory.com/rankings/global"

Cahen, F., Casanova, L. and A. Miroux, Eds. *Innovation from emerging Markets*, Cambridge University Press, Forthcoming

Casanova L. and A. Miroux (2016), *Emerging Market Multinationals Report 2016 -The China surge*, Emerging Market institute, SC Johnson School of business, Cornell University, https://ecommons.cornell.edu/handle/1813/66976

Casanova L. and A. Miroux (2017), *Emerging Market Multinationals Report 2017 - Emerging market multinationals in changing world,* Emerging Market institute, ESC Johnson School of business, Cornell University, https://ecommons.cornell.edu/handle/1813/66977

Casanova L. and A. Miroux (2018), *Emerging Market Multinationals Report 2018 - Emerging markets reshaping globalization*, Emerging Market institute, ESC Johnson School of business, Cornell University, https://ecommons.cornell.edu/handle/1813/66978

Casanova L. and A. Miroux (2019), *Emerging Market Multinationals Report 2019-Emerging markets: building constructive engagement*, Emerging Market institute, SC Johnson School of business, Cornell University, https://ecommons.cornell.edu/handle/1813/69610

Casanova L., Miroux A. and D. Finchelstein, Digital Companies Driving Business Model Innovation in emerging economies, The case of AliBaba, Flipkart, Jumia and Mercado Libre in

Dutta, S., Lanvin, B. and S. Wunsch-Vincent (2020), *The Global Innovation Index (GII) 2020-Who will finance innovation?* https://www.globalinnovationindex.org/ Home

European Union (2019), *The 2019 EU Industrial R&D Investment Scoreboard*; EUR 30002 EN; Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-11261-7, doi:10.2760/04570, JRC118983. (https://iri.jrc.ec.europa.eu/scoreboard/2019-eu-industrial-rd-investment-scoreboard#field_report, accessed May 2020)

Gereffi, G. (2015) *"Global value chains, development and emerging economies,"* MERIT Working Papers 2015-047, United Nations University - Maastricht Economic and Social Research Institute on Innovation and Technology (MERIT).

Globalinnovationindex.org, Global Innovation Index 2009-2010, https://globalinnovationindex.org/userfiles/file/GII-2009-2010-Report.pdf

Kose, M. andF Ohnsorge, 2019. *A Decade After the Global Recession: Lessons and Challenges for Emerging and Developing Economies*. Washington, DC: World Bank. © World Bank. https://openknowledge.worldbank.org/handle/10986/32641 License: CC BY 3.0 IGO."

Lanvin, B., and P. Evans (2018) *Global Talent Competitiveness Index 2018*, and subsequent editions.

Washington, DC: World Bank. License: Creative Commons Attribution CC BY 3.0 IGO.

UNDP (2015,) Millenium Development Goals, 2015 Report

UNESCO (2020) Institute for Statistics, data available at http://data.uis.unesco.org/Index.aspx?DataSetCode=SCN_DS&lang=enJune 2020; accessed in August 2020

World Bank (2020a), World Development Indicators, accessed August 2020 https://databank.worldbank.org/source/world-development-indicators

World Bank (2020b), World Integrated Trade Solutions (WITS), accessed August 2020 https://wits.worldbank.org

World Bank (2020c), Poverty and Equity Data Portal, https://povertydata.worldbank.org/poverty/home, accessed November 2020

Chapter 4
Emerging Markets post-COVID: A Crisis like No Other

Lourdes Casanova - Gail and Rob Cañizares Director, Cornell University (Ithaca, United States)
Anne Miroux - Faculty Fellow, Cornell University (Ithaca, United States)

Executive Summary

COVID triggered the worst global crisis since the Great Depression. This chapter examines its consequences not just for growth and poverty, trade and investment, debt and financial markets, but also for the roles of the state and globalization themselves.

While emerging economies on the whole proved less affected than initially expected, they were dealt a severe blow. The crisis is threatening the progress they achieved to date, imperiling the fight against poverty, and reversing the decline in poverty levels for the first time in 20 years. Growth rates would free-fall in many countries as would jobs. Global trade and investment likewise suffered. The crisis would only exacerbate trends already underway, compounding the debt servicing difficulties of many emerging and developing countries while globalization, long since under attack, faced further setbacks. Still, with massive interventi ons to cushion the shock of the crisis in many countries, including emerging economies, governments have come back to the fore.

Admittedly not all emerging economies were equally hit. Asia, in particular, fared better than the other emerging regions. China stood out, with a projected growth rate of 2%, the only major economy expected to enjoy positive growth in 2020. The crisis is likely to reinforce the divide in the making for quite some time, among emerging markets, in particular between Latin America and Asia. At the global level, the United States and China, the two largest economies, are poised to accelerate decoupling efforts, as an increasingly fragmented world pulls further apart.

4.1. Introduction

COVID 19, a new strain of virus causing severe acute respiratory syndrome, was first reported in Wuhan, China in December 2019, triggering a crisis like no other in the past century. Truly global, the disease would reach every corner of the world, spreading in less than three months to over 200 countries and territories. By March 11th, the World Health Organization (WHO) declared it a pandemic. The speed of the contagion was unprecedented. As of September 2020, according to the WHO and Johns Hopkins, 37 million infections were reported worldwide, with over 1 million having succumbed to the virus.

To date, the mortality rate of COVID19 skews lower than that of other epidemics such as SARS, Ebola, and the Spanish Influenza, with much of the brunt of the impact weighing on health infrastructure. Having triggered a massive influx of patients, COVID would overwhelm hospitals and medical staff, resulting in a dramatic disruption of health systems. Governments took drastic m easures

from banning travel to imposing confinement to slow the contagion. Their effects proved far-reaching, severely curtailing economic activity and provoking major crises, still unfolding at the time of the writing of this report.

Initially, comparisons were made between this moment and the Global Financial Crisis (GFC). Yet, the latter traces its origins to liquidity shortages in the financial markets while, it is the real economy that is at the heart of the crisis today, one that involves fundamental solvency issues for many firms and industries beyond finance. What was before us was both a supply and demand crisis, and unlike previous crises tripped by supply shocks, this time was different, all the more severe given that the shortages engulfed parts manufactured along highly dispersed global value chains.

The earliest signs of the stakes of the current crisis came in January as plant closures in China and other parts of Asia led to interruptions in supply and concerns about dwindling inventories. With the virus spreading from Asia to Europe, the crisis gave way to a broader demand crunch as the measures introduced to contain the spread (e.g., social distancing, travel restrictions, event cancellations, mandatory quarantine, suspension of services, closing of factories, among others) threw a wrench in global economic activity.

Countries all over the world were hit almost simultaneously. While during the Global Financial Crisis and its aftermath, some emerging economies like China, India, or Korea managed high growth, pulling the world economy along, no country or region would fare all that favorably, and with a world even more integrated today, the scope of the mutual amplification of shocks sounded the highest alarms.

Even central banks proved no match for such severe conditions. In spite of its efforts to pressure down interest rates to zero and resume quantitative easing, the crisis spread from the real economy to the financial sector, the reverse sequence of the GFC or the 1929 Great Depression.

It is clear that in speed and depth the COVID crisis has wrought a contraction of historical proportions, all too likely to be the bearer of profound consequences. What follows is an analysis on the implications for the economy, focusing on: GDP growth, employment, poverty, trade, investment, debt, and financial markets. We also consider broader stakes for the role of government, globalization, and global leadership.

4.2. Emerging markets feeling the pain

A. A contraction of historic proportion

The measures taken by governments to address the risks of contagion – notably the lockdown – unraveled manufacturing and service activity. Factories, offices, and shops ground to a halt for several weeks. Travel all but stopped. Eight months after the outbreak, activity had not yet fully resumed in many economies. For firms still relying on outsourced inputs, the consequences would prove dramatic, highlighting the importance of interconnected value chains the world over.

The crisis struck at a time when the global economy was already vulnerable. Global growth had ebbed for three consecutive years, with 2019 closing out an estimated 2.8% in real GDP growth (IMF, 2020a). For years, international organizations had warned of downside risks. Then, they spoke of a worsening trade war, a ballooning debt problem, declining commodity prices and uncertainties in Europe post-Brexit. Yet they were still cautiously optimistic that global growth, largely driven by emerging economies, would recover by 2021 (IMF, 2019a). Then the pandemic broke.

In this section, we gauge how hard the global economy was hit in terms of drops in global output, trade, Foreign Direct Investment (FDI), and employment. Several months after the outbreak, the depth and duration of the shock lay shrouded in uncertainties. Much still depends on the trajectory of the disease and on how effectively policy measures blunt the worst of the shock. During the first semester of the year, for instance, the IMF had twice revised its 2020 initial projections before doing so yet again during the IMF-World Bank October meetings (IMF, 2020a). As to the World Bank, by June 2020 it projected that the crisis would be significantly worse than anticipated, with declines in GDP on the order of 5 percent[20] (World Bank 2020a).

[20] Real GDP Growth at 2010 prices and market exchange rates. (World Bank, 2020a).

Here, we use IMF growth projections published in October 2020, the most recent and detailed projections available at the writing of this report. By then, IMF projections had improved somewhat, compared to its early estimates at the beginning of the crisis. Nevertheless, the contraction in the forecast for economic activity for 2020 – at 4.4% – broke records, the worst since WWII (Table 4.1). By comparison, the decline in global GDP was less than the 1% in 2009 in the wake of the GFC.

Advanced economies are expected to slide dramatically in GDP, by about 6%, with much of Europe expected to plunge even further (Table 4.1). Emerging and developing economies now brace for declines not seen in at least sixty years (by 3.3%). Latin America, in particular, is girding for the largest contraction of all, 8.1% according to the IMF. Negative growth rates of 12%, 6% and 9% are bearing down on major economies in the region such as Argentina, Mexico, and Brazil, respectively, (Table 4.1).

Africa shows more promise with a contraction of 3% on the horizon. Still, the impact on already impoverished populations in countries such as South Africa, where the projected dip in GDP is 8%, is nothing short of dramatic. As in the past, emerging and developing economies in Asia are expected to fare better than other regions, with GDP declining by 1.7%. Yet, here too, some markets, especially in South Asia, are looking at punishing negative growth rates. This is particularly acute in India, now on track for unprecedented deterioration in its economic activity (-10.3%).

Among the E20, nearly half risk a contraction in GDP of at least 6%. Only two are expected to reap positive growth: Bangladesh and China, with the latter boasting by far the best performance of all major economies. (Table 4.1).

The deterioration in economic performance of emerging economies comes amidst a marked decline in commodity prices at the beginning of the crisis, a collapse in tourism, in global trade, external finance, and in workers' remittances (see sections below).

Base metals declined by 17% between January and April, for instance. The European Brent recorded an 85% swan dive and even turned negative for the first time in history in April (Black Monday). Despite rebounds here and there, oil prices are not poised to fully recover (Business Insider, 2020), a blow to growth prospects for oil exporters, including large economies in Latin America, Africa and the Middle East. Meanwhile, base metal prices bounced back after a significant drop. Yet, how such prices will evolve is uncertain as overall demand still hovers below pre-pandemic levels and it is unclear how the economy in major developed countries will fare under the second pandemic wave.

Tourism, with airplanes grounded, hotels closed, and travel restrictions imposed worldwide, stands among the most affected industries. During the first half of 2020, international tourist arrivals fell by 65% and export revenues recorded losses of USD460 billion, about five times the numbers in the aftermath of the GFC (UNWTO 2020). All regions were severely hit, but the Asia-Pacific particularly so, with a 72% drop in international tourist arrivals. Africa and the Middle East would see a 57% decline. As to year's end, prospects remain bleak: current projections point to a 70% decline in international tourist arrivals for 2020, depending on the duration of travel and border restrictions as well as the risk of shutdowns (UNWTO 2020).

Table 4.1. Growth rate, Real GDP: World, regions, and E20 - 2019 and 2020-2021 projections (%).

	2019 Estimate	2020 Forecast	2021 Forecast
World	**2.8**	**-4.4**	**5.2**
Advanced economies	1.7	-5.8	3.9
Emerging and developing economies	3.7	-3.3	6.0
Latin America and the Caribbean	0.0	-8.1	3.6
Asia	5.5	-1.7	8.0
Middle East and Central Asia	1.4	-4.1	3.0
Sub-Saharan Africa	3.2	-3.0	3.1
E20			
Bangladesh *	8.2	-3.8	4.4
China	6.1	1.9	8.2
India	4.2	-10.3	8.8
Indonesia	5.0	-1.5	6.1
Malaysia	4.3	-3.1	6.9
Philippines	6	-8.3	7.4
South Korea	2	-1.9	2.9
Thailand	2.4	-7.1	4.0
Iran	-6.5	-5	3.2
Saudi Arabia	0.3	-5.4	3.1
Turkey	0.9	-5	5
Egypt *	5.6	-3.5	2.8
Nigeria	2.2	-4.3	1.7
South Africa	0.2	-8	2.9
Argentina	-2.2	-11.8	4.9
Brazil	1.1	-5.8	2.8
Colombia	3.3	-8.2	4
Mexico	-0.3	-9	3.5
Poland	4.1	-4.2	2.8
Russia	1.3	-4.1	2.8
Selected advanced economies	**1.6**	**-5.8**	**3.9**
United States	2.2	-4.3	3.1
Euro Area	1.3	-8.3	5.2
Canada	1.7	-7.1	5.2
France	1.5	-9.8	6
Germany	0.6	-6	4.2
Italy	0.3	-10.6	5.2
Japan	0.7	-5.3	2.3
United Kingdom	1.5	-9.8	5.9

* Bangladesh and Egypt have replaced Chile and Pakistan in the E20 list this year
Source: Based on data from IMF, World Economic Outlook, October 2020.

As is often the case, the least developed markets stand most to lose with lockdowns, sky-high unemployment, and devastating growth in poverty.

B. Formal and informal employment badly hit

Unemployment rose substantially worldwide. In October 2020, the ILO estimated that global working hours declined for the first three-quarters of 2020 by 12%, a loss of 332 million full-time jobs (ILO, 2020a). No region was immune. Across the OECD, the rate of unemployment is set to increase to 9.4 %on average by the end of 2020, up from 5.3% in 2019, and could even reach 12.6% in th e event of a second wave (OECD, 2020).

Latin America and the Caribbean have been most destabilized, with employment losses as high as 20% (in hours lost), equivalent to 63 million full time pay-rolls (Table 4.2). Forecasts predict a significant rise in unemployment in LAC from 8% in 2019 to 11.5% in 2020. This dwarfs the effects of the GFC, when unemployment in the region increased by only 0.6%, leveling off at 7.3% by 2009. Likewise, in the Asia-Pacific, a staggering 192 million jobs are estimated to have perished by the third quarter of 2020 (Table 4.2).

Table 4.2. Employment losses compared to last quarter 2019 (millions of full-time jobs*)

	Hours lost**	Number of full time jobs lost (millions)
World	11.7	332
High-income countries	9.4	43
Africa	9.7	36
Asia and the Pacific	11.1	192
Central and Western Asia	15.5	9
Latin America and the Pacific	20.9	63

* based on 48 hours per week
** per cent of total, with baseline Q4 2019
Source: Based on data from *ILO Monitor sixth edition: COVID-19 and the world of work, Updated estimates and analysis, 25 September 2020*, https://www.ilo.org/global/topics/coronavirus/impacts-and-responses/WCMS_755910/lang--en/index.htm, accessed October 2020

Workers in the informal economy have proven particularly vulnerable. According to the ILO, 1.6 billion or half the global workforce are on the line, with a decline in earnings estimated at about 60% globally during the first months of the pandemic (ILO, 2020 b). Here, the Asia-Pacific, where around two-thirds of the workforce are informally employed, stood most to lose (ILO, 2020c).

Concurrently, the drastic increase in unemployment spilled into remittances. Its decline constituted an additional major shock for many emerging and developing countries, a crucial source of finance. In 2019, remittance flows to low- and middle-income countries became larger than FDI and, in a number of poor countries, they account for more than 10% of GDP. The World Bank estimated in April 2020 that remittances to low and middle-income countries could fall by close to 20% in 2020 (World Bank 2020b). But by September 2020, the picture appeared more mixed. Following the initial dip, remittances held on, surprisingly resilient in Bangladesh, El Salvador, Pakistan, Philippines, Kenya, and the Dominican Republic (Quayum and Kpodar, 2020), a possible indication of renewed efforts by migrant workers to assist families as the crisis wreaks havoc in their home contexts. Yet, the trend may prove unsustainable should recessions in host countries linger.

C. Poverty: the Sisyphus myth

While in most advanced economies the impact on job losses could be assuaged by social safety nets, in developing and emerging economies, where independent workers, small enterprises and the informal sector —all with no form of social protection— dominate, the outlook is grimmer.

The World Food Programme projects that the COVID crisis could double the number of people facing acute hunger to 265 million in 2020 (World Food Programme 2020). The World Bank estimated in October 2020 that between 88 and 115 million people could descend into extreme poverty[21] in 2020 (World Bank 2020c), all while the global extreme poverty rate could increase from 8.2% in 2019 to as much as 9.4%, a major departure from the accomplishments of the past two decades laid out in Chapter 3. South Asia with half of these new poor and Africa with a third would be hit really bad (World Bank 2020d).

In Latin America, extreme poverty could increase by 16 million, which would raise the extreme poverty rate from 11 to 12.5% (ECLAC, 2020). If we consider the impact of COVID-19 on poverty as defined for upper middle income-countries at less than USD5.5, the number would be far higher, ballooning to nearly 29 million, and lifting the poverty rate in the region to close to 35%. Latin America, could recede by more than a decade, according to the United Nations Economic Commission for Latin America and the Caribbean (ECLAC): the organization predicts that the region's gains of the last thirteen years in social inclusion hangs in the balance.

Various estimates have been made of the impact of COVID on global poverty (Sumner, Hoy and Ortiz-Juarez 2020, World Bank 2020c, Gerzson, Lakner, Aguilar and Wu, 2020). They vary in magnitude but all point to significant increases around the world and to the same conclusion: 2020 will have seen global poverty rise for the first time in over twenty years, a tragic step backward,

[21] Extreme poverty is defined as less than 1.9 bank USD a day

imperiling the progress achieved in reducing poverty since the launch of the UN Sustainable Development Goals (SDGs) in 2015 and jeopardizing the SDG's prime objective: eradicating poverty by 2030.

D. In the Immediate Aftermath, Capital Fled the South and Exchange Rates Tumbled

The impact of the pandemic on financial markets in the months following the pandemic outbreak was drastic. Emerging economies in particular were significantly hit.

In terms of *portfolio flows*, for instance, the response was swift and unmistakable, even compared to previous crises including the GFC. Between mid-January and the beginning of April 2020, USD100 billion is estimated to have fled emerging economies according to the Institute of International Finance, more than three times the GFC total. Still, a massive influx of liquidity from major central banks and the provision of swap lines to a number of emerging economies stalled the nosedive. As of June 2020, emerging economies managed to raise more than USD83 billion on international bond markets (Financial Times, 14 June 2020). Only by September 2020, the pace of flows slowed down sharply again (Reuters, 2020)

Exchange rates of key emerging economies, such as Brazil, Mexico, Indonesia, South Africa, and the Russian Federation likewise declined pronouncedly (see Figure 4.1). A few currencies, such as the Indonesian rupee, the Russian ruble, the Mexican peso, and the South African rand recovered from their April nadir, but by August 2020, with the exception of Indonesia, they all were significantly below pre-crisis levels (Figure 4.1).

Stock markets in a number of emerging economies faced a similar fate with indices all but crashing, - 28% for the Mexican BMV and more than 45% for the Brazil IBOVESPA during the first trimester. They however rebounded significantly since. Some were even nearing levels pre-COVID (e.g., India and Saudi Arabia) or exceeding them (China and Korea) (Figure 4.2) by August 2020. Latin American stock markets, however, still fall significantly short of their highs in early 2020. Analysts have stressed the disconnect between this rebound and other markedly negative trends like poor growth forecasts for the real economy. They attribute it, in part, to the strong policy responses and large stimulus packages adopted, their effect on market sentiments, and the limited range of profitable alternatives available to investors (IMF, 2020b). The situation, however, remains volatile and sharp adjustments may occur if the recovery is delayed.

Figure 4.1. Emerging Markets Exchange Rates, 1/1/2020 to 7/30/2020.

Figure 4.1 a. Latin American countries

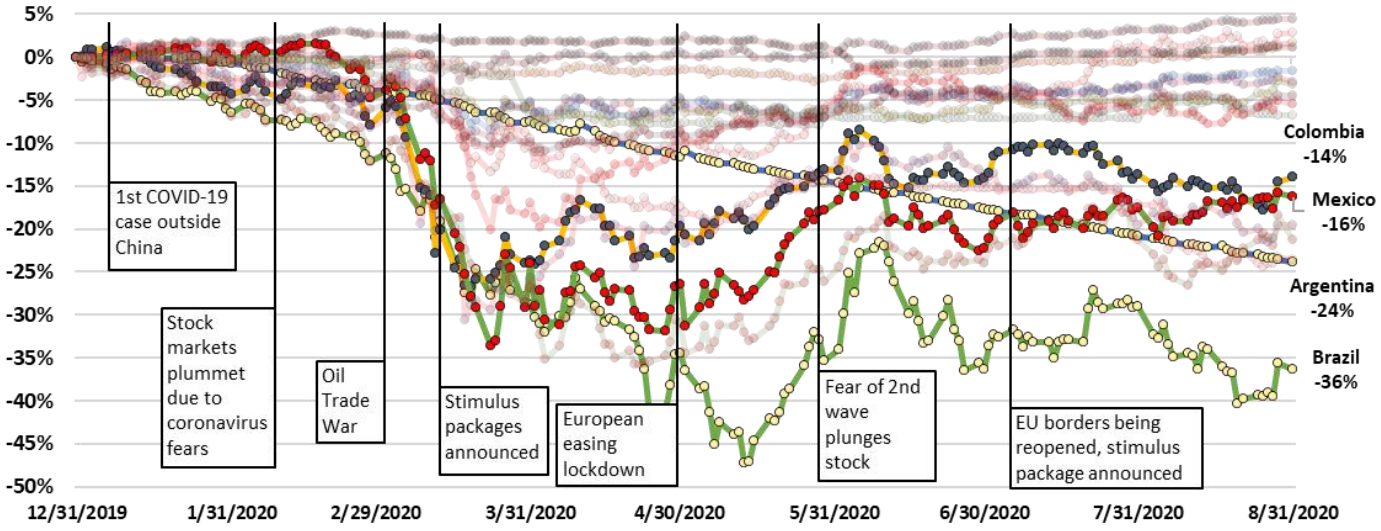


Figure 4.1 b. Asian countries

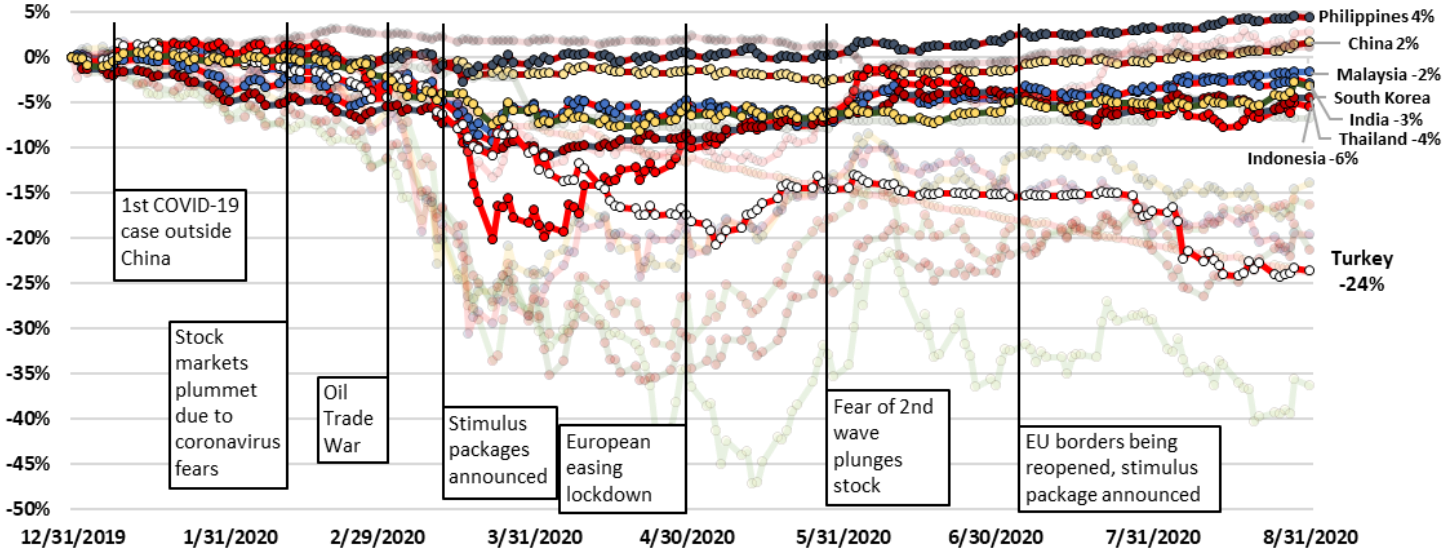
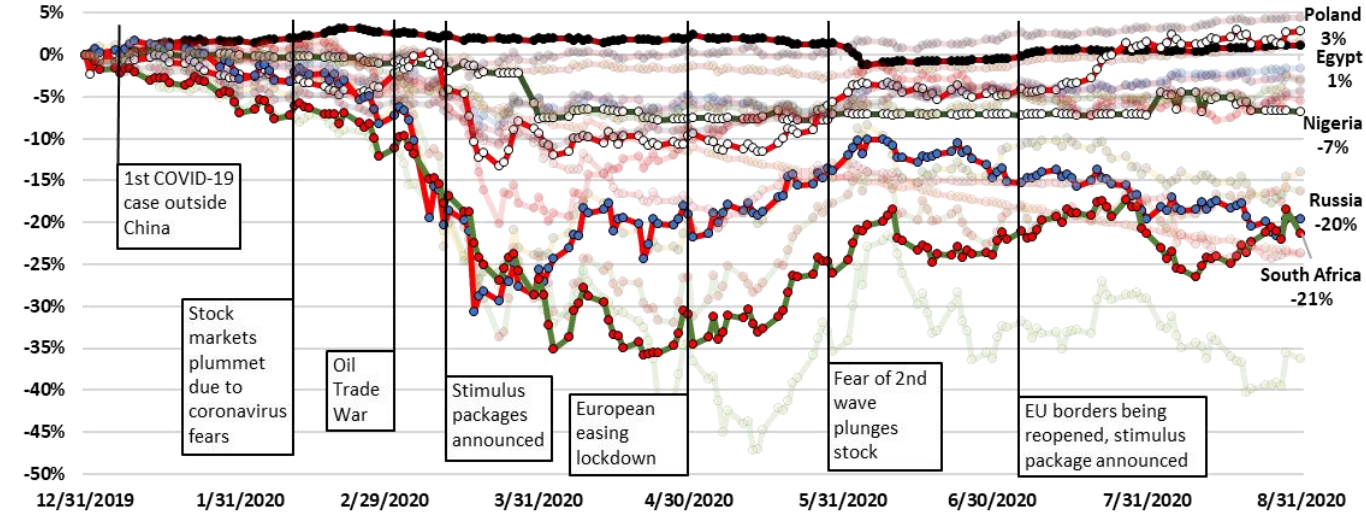
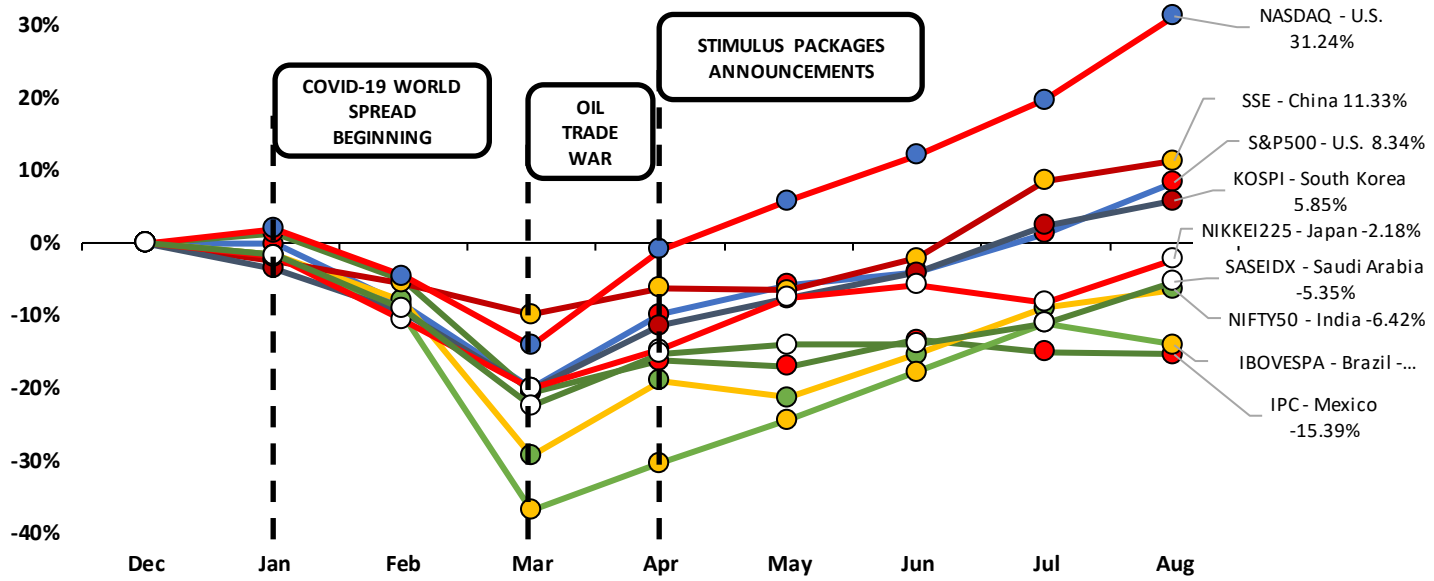


Figure 4.1 c. African and European countries



Source: EMI research team, based S&P's Market Intelligence database (https://www.spglobal.com/marketintelligence), accessed September 2020.

Figure 4.2. Performance of selected stock market Indexes, 1/1/2020 to 8/30/2020.



Source: EMI Research Team based on Bloomberg Terminal (https://www.bloomberg.com), accessed September 2020.

4.3. From globalization to homecoming?

The pandemic contributed to the most considerable decline in the international movement of goods, capital, and people in modern history. The figures, as seen below, are telling. FDI flows are set to drop by 30 to 40% in 2020, and the volume of global trade by about 9%. To put things in perspective, the projected 2020 volume of world merchandise trade barely matched the level in 2010 (WTO 2020b), and the expected fall in FDI flows, a drop in excess of the seven percentage points recorded after the GFC, should bring global FDI back to 2005 levels (see figure 4.3). In international travel, the number of airline passengers is set to ebb at least 50% (ICAO, 2020) as nearly half the globe found themselves in countries with borders closed to non-residents, an unprecedented situation in the post-WWII era. While longer term projections prove hazardous given the prevailing level of uncertainty regarding the evolution of the pandemic and policy responses, there is no denying that globalization has thus far suffered a major setback. Export-oriented countries as well as those relying on FDI as part of global value chains, of which many are emerging economies, face major challenges.

Globalization was already up against headwinds before the crisis hit. For years, increased unemployment, declining standards of living and deteriorating prospects for future generations were fueling distrust and frustration in a number of advanced economies, boosting populist movements. Calls for restrictive trade and immigration policies sung at a fever pitch even prior to the virus. By 2018, the trade war between the United States and China had already made visible what was in fact rampant — protectionism. At the same time, in the European Union, regional integration was severely affected by Brexit and the ensuing departure of the U.K from the European Union. The blow to globalization was all the more fatal as it came from countries that for decades had been the torchbearers of liberalization and free trade.

It is in this context that the crisis revealed the vulnerabilities of companies and nations alike to global value chains, the ultimate symbols of globalization. As firms scrambled to acquire the parts and materials necessary for production in the midst of countries' lockdown, policies crafted to address the public health crisis were severely hampered in many countries by the deficit in pharmaceutical ingredients and medical equipment whose production had been almost entirely offshored. The absence of international coordination only aggravated the sentiments of dependency.

All told, trends toward increased protectionism, already underway since 2018, were reinforced. By April 2020, governments would roll out policies against opportunistic takeovers of domestic firms in strategic and critical sectors including the production of medical equipment and pharmaceuticals (see section below). As to companies, cost efficiency strategies that led to fragmented supply chains and international production networks are being placed under scrutiny. New consideration is given to reshoring and automation in the name of resilience to major external shocks.

Admittedly, producing in countries such as China still offer many advantages (i.e., scale and efficient logistics and still low labor cost) and, if not in China, in low-cost countries such as Vietnam, Cambodia or Indonesia. Shifting and diversifying activities across low-cost economies is an option. Another is to shorten supply chains and bring back production closer to home. Either way, the COVID-19 crisis points to a reconfigurations of global value chains.

A full reversal of globalization may not be in the making, but the crisis, amplifying trends prior to the pandemic, adds further cracks to the system. For many emerging and developing economies, the external environment is likely to be much less propitious.

A. Declining Trade

Trade was already slowing before the pandemic outbreak. Weighed down by trade tensions and slowing economic growth, the value of world merchandise trade in 2019 fell by 3% to USD19 trillion. Meanwhile, the expansion of trade in services slowed, rising by only 2% in 2019 compared to 9% the year before (WTO, 2020a).

Here again the high level of uncertainty impacts projections. Following dire predictions in April (a decline of historic proportion, 13% under an "optimistic scenario"), by October 2020 the WTO revised its estimates: it forecast a drop of 9.2 % in global merchandise trade, similar to the GFC declines. The outlook for 2021 remains well below pre-pandemic levels (WTO, 2020b and 2020c). With the exception of Asia, all regions suffer a significant fall in imports and exports, especially Latin America.

Due to transport and travel restrictions, as well as social distancing measures put in place to fight the pandemic, global trade in services is also expected to be severely hit, particularly transport, distribution services, and tourism (as illustrated above). There are no comprehensive statistics available on services trade, but the world services trade activity index calculated by the WTO points to a plunge in trade services in 2020 far exceeding the decline registered during the GFC (WTO 2020c) .

The role of global value chains as a transmission channel is a key feature of the present crisis (Baldwin and Tomiura, 2020). As mentioned above, the disruption of value chains soon became an issue when the disease first broke out in China, which accounts for 20% of global trade in manufacturing intermediate products (UNCTAD, 2020b). With the virus spreading globally, sectors characterized by complex value chain linkages, such as electronics, optics and automobile are likely to register steeper falls in global trade. East Asia, for instance, is deeply integrated in GVCs, with the share of foreign value added in its exports close to or exceeding 30% in most cases. According to the OECD Trade In Value Added (TiVa) database, the share of foreign value added in electronics exports totaled 25 % for China, more than 30 % for Korea, 40 % for Singapore and 50 % for Mexico, Malaysia and Vietnam.

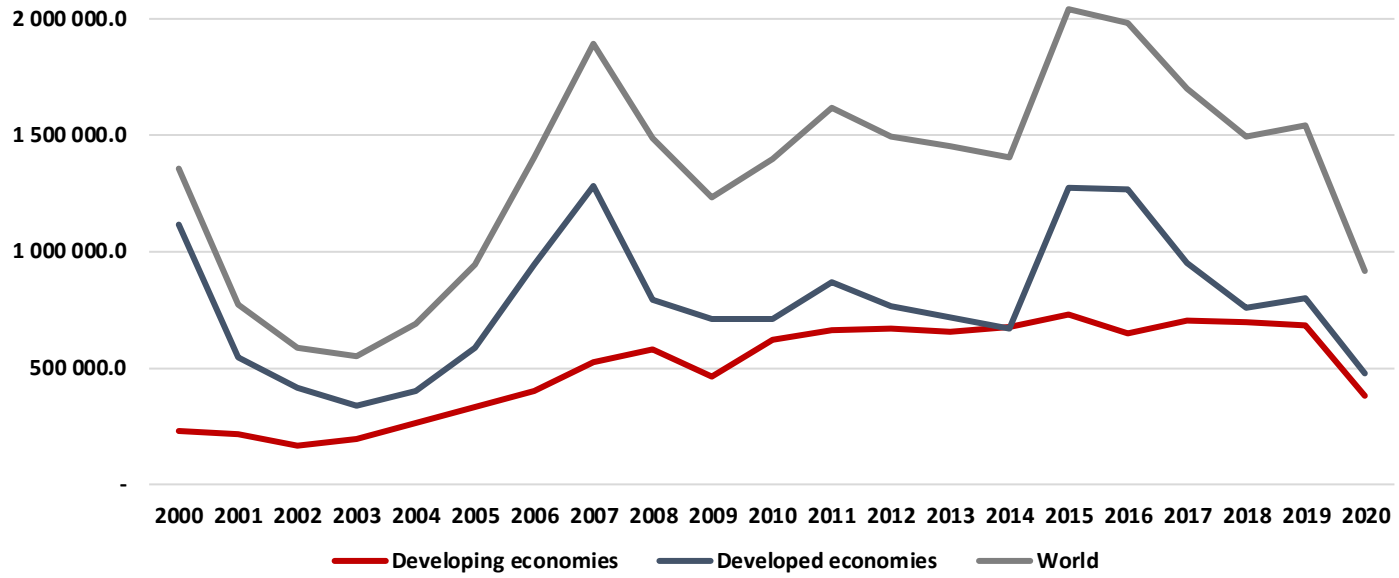
B. FDI in retreat

Disruptions in supply, contractions in demand, and overall pessimistic market sentiment triggered by the pandemic spilled over to global FDI flows, accelerating the decline observed since 2015 (Figure 4.3). Chapter 7 provides an in-depth analysis of how the COVID crisis and its ensnarement across global value chains impact FDI and the modes of operation of multinational enterprises.

The drop in the 2020-2021 period could be the largest ever since 2001, winding down FDI flows to about USD1 trillion or less (UNCTAD, 2020c and 2020d). Preliminary estimates published in October 2020 by UNCTAD assessed that the decline in FDI flows for the first half of 2020 had reached a staggering 49 % (UNCTAD, 2020d). A 30 to 40 % decline is projected for the whole year. A rebound is not expected before 2022, and here still far below pre-crisis levels.

No region is spared. Advanced economies saw the biggest fall in FDI inflows during the first six months of 2020, a dramatic 75%. Developing and emerging economies, by comparison, did much better (minus 16%), largely thanks to Asia where the decline was only 12 per cent. Latin America and Africa registered drops as high as 28 and 25% respectively. The situation, however, is quite diverse with some major regional economies such as Argentina, Colombia, Nigeria, and India faced with decline in FDI inflows of 30 to 40 %, and even 48% for Brazil, (UNCTAD 2020d).

Figure 4.3. FDI inflows, 2000-2020 (USD millions).



Source: EMI Research team based on UNCTAD stats (https://unctadstat.unctad.org/EN/Index.html), accessed September 2020), UNCTAD world Investment Monitor October 2020 and World Investment Report 2020 for 2020 projections.

The massive 2020 decline in FDI flows reflects the drop in corporate earnings foreseen for 2020. Indeed, while reinvested earning is estimated at about half of FDI flows, they should plunge by about 30% (UNCTAD 2020e). Equity capital have fared just as poorly as firms defer greenfield investments as well as mergers and acquisitions (M&As). New announced greenfield FDI projects fell significantly during the first half of 2020. Emerging and developing economies are now beset by shortfalls in projects in the manufacturing sector. The value of greenfield FDI by the E20 emerging economies plunged 55% year on year (compared to a 30% drop in G7 economies). The cross-border M&As of top purchasing countries also spiraled down in the same period: China saw the value of its cross-border M&As collapse by 80% and Japan and Germany by about 60 and 20% respectively (see Chapter 2 for a detailed analysis).

In addition to the demand and supply shocks as well as waning investor sentiment, policy trends to prevent acquisitions of sensitive assets (examined below) are likely to significantly impact global FDI.

C. Governments reinforce scrutiny of foreign investments: A world upended

Even before COVID, a number of countries traditionally considered as open to foreign investment were moving towards increased scrutiny of FDI transactions, especially M&As, on national security grounds. The pandemic only intensified this turn toward increased protectionism. Building on the experience of the GFC, governments would protect their domestic firms affected by the crisis from opportunistic foreign takeovers. At stake was the protection of strategic sectors, a concept now expanded to span sectors such as medical equipment, research, and pharmaceuticals, among others. The tightening now includes 1) lowering the FDI threshold for government review in a wide range of sectors; and 2) expanding the list of assets considered as sensitive or critical.

Most of the intensified scrutiny on acquisitions by foreign investors is from advanced economies. The shift was particularly noticeable in the European Union. In March 2020, it introduced guidelines on FDI screening, encouraging Member States to be "particularly vigilant to avoid that the current health crisis does not result in a sell-off of Europe's business and industrial actors." It is in this context that France, Germany, Hungary, Italy, and Spain, introduced a number of changes in their screening mechanisms.[22]

[22] France, Hungary, Italy and Spain, introduced changes in their screening of M&A deals involving foreign investors. They lowered to 10 % the threshold of equity participation triggering the need for government approval and expanded the list of industries subject to increased government scrutiny. Germany accelerated the reform already under way in the country to intensify scrutiny on foreign acquisitions, not only expanding the list of industries subject to increased scrutiny but also allowing the government to intervene even when there is only a presumption that the acquisition by a foreign investor may affect the security or public order.

Beyond the E.U., other countries such as Australia, Canada, and the United Kingdom also imposed new and stricter restrictions on FDI to protect domestic companies from opportunistic takeovers.

India is one of the rare emerging markets that took such action to date. It had significantly relaxed its FDI regime, especially since 2017, but took a step back in April 2020: it announced that investors from countries with a land border with India - namely Afghanistan, Bangladesh, Bhutan, China, Myanmar, Nepal, and Pakistan[23] - would require prior approval for investment in any sector. Investment from China will be particularly affected.

4.4. COVID crisis compounding an already difficult debt situation

There was a looming debt problem in developing and emerging economies prior to the COVID19 crisis (UNCTAD 2019a and 2019b). Throughout the past ten years, their debt surged such that - according to the World Bank – it would be classified as the "largest, fastest and most broad based increase" in the past half century (Kose, Nagle, Ohnsorge, and Sugawara, 2020). By the end of 2018, it would reach USD 55 trillion,[24] with a debt to GDP ratio rising to 165% compared to 102% in 2009. Much of this increase was due to China, but even excluding China, debt to GDP ratio of emerging and developing economies rose by about 20 percentage points to 107% in 2018.

Both private and government debt took part in this surge. Private debt accounted for a large part of the increase, ballooning from 66% of GDP in 2009 to 117 % in 2018, largely fueled by China where private corporate debt soared after the GFC. In other emerging markets and developing economies, public debt played a more important role, accounting for almost three-fifths of the debt buildup between 2010 and 2018 (Kose, Nagle, Ohnsorge, and Sugawara, 2020).

External and domestic debt alike participated in the buildup. In China, the increase was mostly due to domestic debt. In other emerging and developing economies, external and domestic debt contributed almost equally: both saw ratio to GDP tick up by about 9%. Domestic debt ratcheted to 72 % of GDP, while external debt rebounded to 35% in 2018 (Kose & al., 2020).

The debt buildup of the 2010s was also marked by a shift in the composition of external creditors – with an increasing reliance on capital markets and riskier forms of credit (UNCTAD 2019a). Such a change would impact the ability of the international community to address debt-ridden economies. For instance, the dispersion among a large number of private bond holders renders it difficult to reach common agreement on debt relief as illustrated by the episode of the Argentinian debt restructuring (Financial Times, 4 august 2020). Regional banks also assumed increasing importance in the external finance of emerging and developing economies. Among bilateral official creditors, an evolution towards non-Paris Club creditors ran its course as China assumed a key lending role to Africa and Latin America (Casanova and Miroux, 2019).

The drop in global demand, volatile commodity prices, collapsing tourism, and declining remittances brought about by the COVID crisis will further exacerbate the challenge of external debt servicing for emerging and developing economies. At end 2019, the external debt of low- and middle-income countries surpassed 8 USD trillion. Between 2011 and 2019, their ratio of debt service payments to export revenues had increased from 12 to 15%. Two regions in particular observed a significant deterioration in their external debt situation during the 2010s: Sub-Saharan Africa, where the debt service to export ratio rose from 5 to 14 %, and Latin America where it would nearly double from 15 to 27 % (Table 4.3). For several major emerging economies, such as Argentina (with a debt service to export ratio growing from 21% in 2009 to 46 % in 2019), Brazil (from 23 to 53%), Colombia (from 22 to 41%), South Africa (from 6 to 15 %), and Nigeria (from 1 to 7%), the worsening had already been severe pre-pandemic.

[23] Before, the scrutiny applied only to Bangladesh and Pakistan

[24] 2018 was the latest year available at the time of writing the report. (World Bank, International Debt Statistics, accessed in August 2020).

Table 4.3. Debt service to export ratio – selected E20 countries and regions 2009-2019**

Country Name	2009	2019
Asia		
Bangladesh	6.4	12.8
China	2.9	9.6
India	6.0	9.0
Indonesia	19.6	39.4
Philippines	18.1	9.7
Iran, Islamic Rep.	2.1	0.5
Turkey	41.5	34
Latin America		
Argentina	21.2	46.5
Brazil	23.5	53.1
Colombia	22.0	32.3
Mexico	12.7	12.3
Africa		
Egypt, Arab Rep.	6.5	16.1
Nigeria	1.3	7.1
South Africa	6.0	14.8
Europe		
Russian Federation	24.2	17.6
East Asia & Pacific*	**4.9**	**11**
Latin America & Caribbean*	**18.5**	**27**
Sub-Saharan Africa*	**5.9**	**14**
Middle East & North Africa*	**7.9**	**14**
Europe & Central Asia*	**28.9**	**22**

Note: Not all countries report to the World Bank under the World Bank's Debtor Reporting System (DRS). Malaysia and Poland are not included.
Source: EMI Research team based on data from World Bank International Debt Statistics, available at https://openknowledge.worldbank.org/handle/10986/34588), accessed October 2020

The COVID crisis, bearing down at a time when a number of emerging and developing economies grappled with high debt vulnerability[25], compounds their ongoing difficulties. The IMF estimated in September 2020 that the government debt to GDP ratio of emerging market and middle-income economies would increase by an unprecedented 10 percentage points to 62 %, and their fiscal deficit[26] to GDP ratio would double to about 11 % over 2019-2020 (IMF 2020c). Many E20 countries, in particular, are expected to register a significant deterioration in their fiscal balance (Table 4.4). In addition, following the outbreak of the pandemic and a surge in debt issuance, in June 2020 the dollar denominated debt of emerging markets rose for the first time past 4 USD trillion according to the BIS.

Table 4.4. General Government Overall Balance– Selected E20 countries, 2019 and 2020 (per cent of GDP)

	2019	2020
Brazil	-6.0	-16.8
China	-6.3	-11.9
Colombia	-2.5	-9.5
India	-8.2	-13.1
Iran	-5.5	-9.5
Philippines	-1.8	-8.1
Poland	-0.7	-10.5
Saudi Arabia	-4.5	-10.6
South Africa	-6.3	-14.0
Thailand	-0.8	-5.2

Source: EMI Research team based on data from IMF Fiscal Monitor October 2020, Statistical Annex A9, https://www.imf.org/en/Publications/FM/Issues/2020/09/30/october-2020-fiscal-monitor, accessed October 2020

[25] See inter alia UNCTAD, Trade and Development Report 2019, Chapter IV (UNCTAD 2019b)
[26] General government overall balance

High levels of indebtedness restrain the room for maneuver for policy, impairing governments ability to take necessary action and rein in the crisis and its consequences. In view of the situation, the IMF, World Bank, and other multilateral institutions stepped in to provide emergency financing. The IMF, for instance, made available to member countries USD250 billion (i.e. a quarter of its lending capacity), and by September 2020 approved USD101 billion in financial assistance to 81 countries.

A few initiatives surfaced to ease the external debt burden. In April 2020, the IMF approved immediate debt service relief to 29 countries under its Catastrophe Containment and Relief Trust Fund (CCRT), a facility that provides grants to the poorest countries to cover their IMF debt service obligations. Covering debt obligations falling due between April 2020 and April 2021, it could be extended for the most vulnerable countries for up to two years. Between April and August 2020, the debt relief dispersed amounted to USD251 million. African countries accounted for about 80% of the beneficiaries (IMF, 2020a).

Likewise, encouraged by the IMF, the World Bank and others, the G20 adopted in April 2020 a Debt Service Suspension Initiative (DSSI) that temporarily suspended till the end of the year debt servicing on official bilateral debt for the poorest countries (IDA-only countries and those classified by the UN as Least Developed). Endorsed by the Paris Club, the Initiative has been agreed upon by all G20 members, including non-Paris Club creditors. China tagged along, stating that it would work with other G20 members to implement the Debt Service Suspension. This would be the first time China would join a coordinated multilateral effort for global debt relief (China Ministry of Foreign Affairs, 2020). At the IMF-World Bank annual meetings in October 2020, agreement was reached to extend the initial debt service suspension by six months till end June 2021. Further extension cold be agreed at the IMF-World Bank 2021 Spring meetings.

Such initiatives provide much-needed breathing space to debt-ridden countries in a crisis situation. Yet, many have stressed that these efforts will not suffice to truly lift the debt burden of economies struggling to fight the pandemic. The G20 debt moratorium for instance would not apply to multilateral and private debt and does not deal with the case of middle-income economies – despite the severe debt burden faced by a number of them as illustrated above. The G20 has been calling upon private creditors to participate in the initiative on comparable terms, but there has been no real move in that direction to date[27]. Finally, there are still a number of open questions regarding, for instance, the participation of financial institutions from non-Paris Club creditors in the DSSI, or the impact on debtor countries' credit ratings and market access. Calls for comprehensive debt restructurings, a new architecture for sovereign debt restructuring, and alternative mechanisms for debt payment suspension now abound. They suggest for instance the creation of a Central Credit Facility at the World Bank, or a Global Debt Deal (Bolton, Bucheheit and al. 2020, Eurodad 2020, Nye and Rhee 2020; Rashid and Stiglitz 2020; UNCTAD 2020f among others).

4.5. More government, less markets

A. Overview

With the COVID crisis, governments have come back to the fore and forcefully intervened to cushion the economy, in a move that harkens back more than fifty years ago.

The period following WWII ushered in an expansive mandate for the state in the economy, but by the 1970s, it would all come under scrutiny. Doubts were cast against its efficacy as inflated public sectors, increased budget deficits, heavy tax burdens became the targets of a new consensus, built around the principle of economic liberalization and encompassing deregulation, privatization, free trade, reduction in government spending and an increased role for the private sector. Neoliberalism, as it was called, found solid ground after the Latin American debt crisis in 1982, and was exemplified by the policies of the Reagan administration in the United States and the Thatcher government in the United Kingdom, among others.

With the end of the Soviet Union and the Communist bloc, the neoliberal model became the new economic orthodoxy in much of the world. There was broad adhesion to the new thinking as international financial organizations like the IMF and the World Bank modelled their adjustment programs around liberalizing principles, from flattening the fiscal deficit and downsizing the public

[27] The Institute of International Finance agreed on a "general terms of reference" for the participation of private lenders in the initiative. Yet, this participation remains voluntary and as of October 2020 no move towards debt cancellation or suspension had actually taken place.

sector to eliminating industry subsidies and floating currencies. The organizing principles behind the expansion of market forces —the so-called Washington Consensus—became all but sacrosanct.

In international economic negotiations, some developed countries would forcefully advocate for the free reign of market forces. In the 90's, waves of privatization bore down on a variety of sectors, including infrastructure services such as water, electricity and transportation, in many regions in the world including in particular Latin America. While the extent and scope of reform would vary, neoliberalism would dominate the language and action of both scholars and policymakers.

By the 2007-2008 Global Financial Crisis, cracks in the foundations of this new liberalism would surface, particularly in the countries that first promoted it. In the United Kingdom and the U.S., for instance, governments confronted the crisis with a new spending package and steps to nationalize imperiled institutions (the U.K) and a policy of quantitative easing combined with a hefty stimulus programs (the U.S.). This however did not last. The pendulum swung back, and a reduced role for the State remained the orthodoxy.

Today, the Covid-19 shock stands to challenge this bedrock. As contagion and mass unemployment compound the crisis, a new mandate with and for the State looms. Some argue the pandemic may constitute a turning point in history – on the order of the WWII-era New Deal. Perhaps. For now, powerful forces converge to that effect.

First, the COVID crisis laid bare the insufficiencies of social safety nets the world over, including in advanced economies. The debate around social insurance in the United States, for instance, is now being revived as the crisis strikes a double-blow to health and income, sharpening the appetite for public spending and services. With the state coming to the rescue, the crisis is bringing back the notion of basic public services. Second, the financial orthodoxy of past decades (limiting government spending and balancing budgets at any cost) has given way to an almost complete relaxation of constraints. Hence a more pragmatic attitude toward economic intervention on a scale not seen in decades.

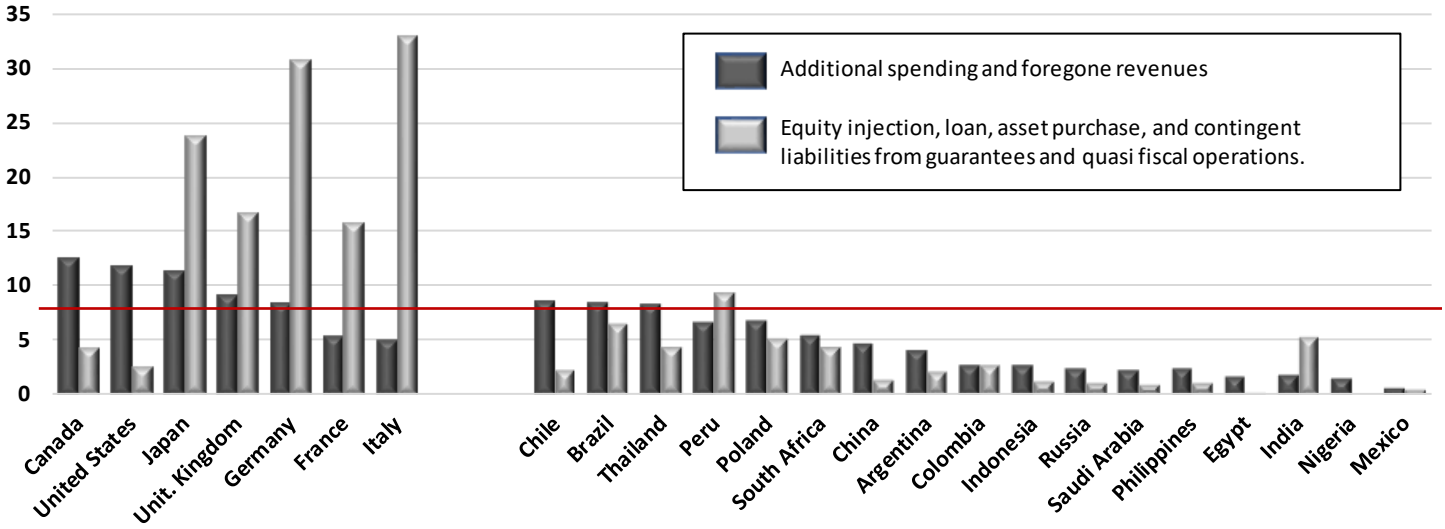
Faced with the threats of massive unemployment reminiscent of the Great Depression, many governments adopted unprecedented support measures to preserve jobs and business. As of October 2020, government fiscal measures to address the COVID crisis totaled a staggering USD12 trillion (IMF 2020e), almost four times the GFC response. The ways and means for providing support through fiscal stimulus packages differed. In some cases, countries made direct cash transfers to citizens. Others have expanded social welfare benefits, suspended mortgages payments, or covered a portion of wages. To support businesses a number of countries dispersed emergency loans to firms or suspended loan repayments, while others embraced equity participation and even nationalization to save key companies. The packages, largely financed through debt, contribute to the aforementioned surge in government indebtedness and fiscal deficits.

Particularly notable were the fiscal relief packages measures announced by the US government between March and April 2020 that amounted to USD2.8 trillion, including among others a one-time direct cash payment to qualifying citizens. By mid-October 2020, an additional relief package was under discussion. Accordingly, with the EU setting aside its budgetary balance objective, several countries in the EU adopted large spending support programs while packages to provide liquidity support to firms moved forward. By July 2020, the twenty-seven member states would agree to a massive stimulus package (USD860 billions).

The move engulfed emerging and developing economies. Many offered strong fiscal and monetary support all the same, relaxing their fiscal stance to fight the pandemic, offer social assistance, and stymie the economic shocks. Though comparatively smaller than in developed economies, such efforts were significant in these contexts. Among the E20 economies Brazil, Chile, Poland, South Africa, and Thailand, for instance, adopted fiscal measures packages (additional spending and foregone revenues; equity injection, loan, asset purchase, and contingent liabilities) corresponding to between 10 and 15 % of their respective GDP (Figure 4.4).

A number of emerging and developing economies lent support to targeted sectors such as agriculture (e.g., India, Malaysia, Philippines, Thailand, Saudi Arabia, Turkey), tourism (e.g., Thailand, Indonesia, Saudi Arabia, South Africa, Turkey, Egypt, Russia) or export activities (Bangladesh and Egypt for instance). Others provided social security relief (e.g., Thailand, Indonesia, Saudi Arabia, Turkey, Egypt, Russia), directed support to workers (e.g., Chile, India, Iran, Brazil, Mexico, South Africa) or pensioners (Mexico, Egypt, Turkey, and Brazil). Many also set aside additional financing for the health sector to contain the spread of the virus. Bangladesh, Egypt, and Russia, for instance, would provide direct assistance to health workers.

Figure 4.4. Fiscal packages in response to COVID crisis – selected E20 and G7 countries (per cent of GDP).
(March - September 2020)



Source: EMI Research team, based on IMF Policy Responses to COVID, Policy Tracker available at https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19, and IMF, Fiscal Monitor Database of Country Fiscal Measures in Response to the COVID-19 Pandemic, IMF, https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19; both accessed in October 2020.

Providing direct financial support to individuals, some of the measures adopted as part of these relief packages carry certain features of a basic income – a concept that has been discussed for decades and that the crisis is bringing back in both developed[28] and emerging economies. By March 2020, the Brazilian Congress, for instance, passed a bill adopting an "emergency basic income" of 102 US $ for the newly unemployed, including informal workers. While temporary, the move came under a government in one of the largest emerging economies otherwise hostile to government interventions in the economy. South Africa would also announce in July 2020 its one plan—a Basic Income grant, that would effectively establish a minimum income for all working adults (Hallink, 2020).

Meanwhile, many emerging economies have eased monetary policy, cutting interest rates and relaxing macroprudential regulations. They loosened bank capital requirements, increasing borrowing limits to ease liquidity conditions and enable banks to provide debt relief to borrowers. Many would go further, engaging in "quantitative easing" (QE) programs, with central bank purchases of long-term financial assets such as government and corporate bonds. An unconventional monetary policy tool[29], quantitative easing has been used on a number of occasions by advanced economies since the Global Financial Crisis, but it is the first time ever emerging economies are resorting to it. As of September 2020, 18 emerging economies had all announced quantitative easing measures, including among the E20 Chile, Colombia, India, Indonesia, Malaysia, Philippines, Poland, South Africa, Thailand, and Turkey (IMF 2020e).

How enduring this new policy trend proves is yet unknown, but the shock has been so dramatic and deep-seated that it may well lead to a reconsideration of the role of government in the economy and new calls for public intervention in the future.

B. Selected emerging market examples

A few examples illustrate the scope and diversity of the policy responses adopted by emerging economies. The following present some of the fiscal and monetary measures adopted in six major emerging economies in Asia (India and China), Latin America (Brazil and Mexico) and Africa (Nigeria and South Africa)[30].

[28] In the European Union, Italy, Portugal and Spain have been specifically calling for a common EU basic income, and in late May 2020 Spain rolled out a guaranteed minimum income scheme for the poorest families.

[29] There has been a debate on the use of quantitative easing as a monetary policy tool and its effectiveness. See among others Hartley and Rebucci 2020; Benigno, Hartley, Garica-herreo, Rebucci and Ribakova, 2020.

[30] Based on information available as of October 2020, from International Monetary Fund Policy Tracker "Policy Responses to COVID-19" (https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#N, accessed October 2019) and IMF, *Policies for recovery*, Fiscal Monitor, October 2020.

In Asia, ***India*** adopted a wide set of monetary measures. For instance, it cut its cash reserve ratio, and its repo and reverse repo rates (to 4 and 3.3% respectively); temporarily reduced the Liquidity Coverage Ratio; restricted dividend payouts by banks; and created a facility to help with state government's short-term liquidity needs. A large number of measures specifically targeted businesses, setting up special refinance facilities for rural banks, housing finance companies, and small and medium-sized enterprises; providing collateral free lending with 100 per cent guarantee, and partial credit guarantee scheme to support public banks' lending to non-bank financial companies, housing finance companies (HFCs), and micro finance institutions. Particular attention was paid to Micro, Small and Medium Enterprises (MSMEs) through subordinate debt for stressed MSMEs with partial guarantee, and the creation of a 'Fund of Funds' for equity infusion in these enterprises, among other initiatives. India also relaxed the eligibility criteria and extended the Emergency Credit Line Guarantee Scheme for MSMEs until March 31st, 2021 and halved the interest rate charged on overdue filings of small businesses. The central bank also launched an asset purchase program (quantitative easing) to stabilize the domestic bond market (IMF, 2020e). Faced with the risk of surging insolvencies, India also amended the Bankruptcy Code, prohibiting any insolvency cases until Dec. 25, 2020, and its Securities and Exchange Board (SEBI) relaxed norms related to debt default on rated instruments.

India's fiscal package was equivalent to about 7% of GDP. Measures aimed at direct spending efforts or deferred or foregone revenue, however, accounted for only 1.8 of GDP (Figure 4.4). Besides additional spending on health infrastructure (for testing, medical equipment for instance) they included assistance to poor households (e.g., food, cooking gas, and cash transfers to low-income households; wage support and employment provision for low wage employees); insurance for healthcare workers, specific support for migrant workers, and the relaxation of a number of tax regulatory requirements. The package also included support schemes for certain sectors such as the Production Linked Incentive Scheme directed at 13 priority sectors. Agriculture and urban housing were particularly targeted.

In ***China***, the fiscal policy response in term of additional expenditures and foregone revenues was higher: equivalent to about 4.7% of GDP, it comprised a set of discretionary measures including, among others, spending for epidemic prevention and the production of medical equipment; accelerated payments of unemployment benefits and extension of unemployment insurance to migrant workers; tax relief and the waiving of social security contributions. A number of specific public support measures such as cuts in fees or tariffs on electricity or roads, for instance, were also adopted. On the monetary front, China resorted to: (i) liquidity injection into the banking system via open market operations (ii) expansion of re-lending and re-discounting facilities and reduction of their respective interest rates to support manufacturers of medical supplies as well as micro-, small- and medium-sized firms and the agricultural sector and iii) cuts in several bank lending rates aimed at benefiting small and medium size enterprises (SMEs). Particular attention was paid to micro and small enterprises (MSE) as reflected in the numerous measures adopted to support lending to these firms, such as: the expansion of policy banks' credit lines; the introduction of new instruments, including a zero-interest "funding-for-lending" scheme to finance part of the local banks' new unsecured MSE loans; raising the target for large banks' lending growth to micro and small enterprises, and establishing an evaluation system for banks' lending to those enterprises. Several measures - such as delays in loan payments, the relaxation of loan size restrictions for online loans and other credit support measures, and the easing of housing policies by local governments - also eased financial conditions for eligible SMEs and households,

In Latin America, ***Brazil*** stands out: its fiscal package was equivalent to about 15% of GDP in 2020, with additional spending and foregone revenues alone accounting for more than 8 per cent of GDP, one of the highest among emerging economies (Figure 4.4). Measures included, among others, increased spending in health expenditures, employment support (in particular through partial wage compensation as well temporary tax breaks), lower taxes and import levies on essential medical supplies, and financial assistance to states and municipalities with a temporary stay of debt payments. Particularly notable was the direct support to vulnerable households through, inter alia, cash transfers to informal and low-income workers and the inclusion in the Bolsa Familia program of more than 1 million additional beneficiaries. Monetary measures mostly aimed at encouraging lending through easing rules and requirements. For instance, reserve requirements were reduced, and provisioning rules were temporarily relaxed. For small financial institutions capital requirements were changed. The central bank also opened a facility to provide loans to financial institutions backed by private corporate bonds as collateral, and a swap facility (of up to US$60 billion) for the central bank was set up.

With a fiscal package equivalent to about 1% of GDP as of September 2020, ***Mexico*** was at the other end of the spectrum. Fiscal measures included increased health expenditures to fight the pandemic, direct support to households and firms (e.g.,

frontloading of old-age and disability pension payments; acceleration of procurement processes and VAT refunds; loans to workers, in particular self-employed and domestic workers, and to SMES); and provision of liquidity support and guarantees by development banks. Increased resources were also allocated for additional social spending on, among others, infrastructure, security, education, housing, and urban improvement. On the monetary front, the government adopted a set of measures to, inter alia, support the flow of credit (through cuts in interest rates, reduction in the mandatory regulatory deposit, the opening of financing facilities for commercial and development banks for MSMEs and individuals affected by lockdowns), strengthen liquidity (by substantially expanding financing facilities through reducing the cost of repos and expanding the range of collateral accepted and of institutions eligible) and ensure the proper functioning of financial markets.

In many countries in Africa, fiscal policy response was constrained by limited budgetary resources. In ***Nigeria***, for instance, the country was already facing a difficult financial situation due to the decline of oil prices over the past decade. Then in April 2020 oil price collapsed as seen above, only to recover somewhat later on. With depleted financial resources, fighting the pandemic and supporting the economy has been a major challenge. Nigeria adopted a number of measures to this end, establishing a fund to support the country's economy (of 50 billion naira, i.e., about USD 131 million), targeting the health sector and poor and vulnerable households as well as micro and small enterprises. The government for instance provided some food assistance and cash transfers to vulnerable households and offered a 50% tax refund to companies that did not cut down staff until the end of the year. However, the fiscal policy response in additional spending and foregone revenues barely reached 1.5 % of GDP (Figure 4.4). Monetary authorities also reduced the cost of borrowing, expanded credit facilities for business and household, and announced a moratorium on principal repayments on intervention facilities provided by the central bank, among other initiatives.

In ***South Africa***, as well, the situation was particularly difficult since the country was facing a fiscal crisis even before the pandemic, largely because of lower commodity prices. In April 2020 the government announced a large package of measures (R500 billion, i.e., about USD 26billion) to support the health system as well as business and individuals impacted by the crisis. A significant part of the package (about 40%) consisted of a credit guarantee scheme to encourage banks to extend credit to eligible businesses. The package also included a large set of fiscal measures, including additional spending for the health system, assistance to municipalities for basic services provision, wage support through the Unemployment Insurance Fund (UIF), further income support through tax relief, and financial support for small and informal businesses. At 5.3 % of GDP (counting only measures based on additional spending and foregone revenues), South Africa's policy response has been quite sizeable compared to many other economies, both emerging and advanced, (Figure 4.4), and one of the largest in Africa. Because of its severe budgetary situation, however, the government had to carry out a wide reallocation of expenditures compared to its initial 2020 budget to finance it. On the monetary front, South Africa lowered policy rates, and adopted a number of additional measures to ease liquidity conditions. It set up a range of facilities for banks, temporarily relaxed bank capital requirements, and reduced the liquidity coverage ratio, among others. It also facilitated debt relief for bank customers, South Africa is also one of the emerging economies that launched for the first time a Central Bank asset purchase program (quantitative easing) to support the smooth functioning of capital markets.

4.6. A fragmented world

The geopolitical implications of the COVID crisis may be no less radical than the economic ones—perhaps none more consequential as the impact on global leadership and on the emergence of a fragmented world.

The crisis highlighted the unique position of China in the global economy. Recovering more quickly than the rest of the world, the country is the only major economy foreseen to grow by 2% in 2020. By comparison, the projected average growth rate of advanced economies is in negative territory, with major economies such as France, Germany, Japan, the United Kingdom, and the USA all bracing for significant contractions in economic activity. The recent signing in mid-November 2020 of the Regional Comprehensive Economic Partnership (RCEP) among China and 14 Asia-Pacific countries, the world's largest trade agreement, may further elevate China's political and economic influence in Asia and beyond.

The pandemic has thrown into sharp relief the vulnerability of global supply chains. It highlighted the dependence of the world on China and vice-versa. On the heels of a trade war between the U.S. and China, it accelerated efforts in both countries on self-

reliance. The former would reinforce calls for decoupling. The latter would renew priorities for building up domestic strength, with a particular focus on technology and innovation.

Today, China is doubling down on its domestic market, stepping up efforts to shift from an economy largely relying on exports to one driven by domestic consumption. The shift is part of the country's dual circulation[31] strategy and may not be good news for China's trading partners - and the global economy overall. A rift may also be surfacing in the field of finance. Indeed, while western economies are fighting to keep afloat, China is working to launch a new currency, the digital yuan, aspiring to become an international payment and reserve currency. The new digital yuan has been tested in several Chinese cities since August 2020. China may als o hope to set up its own international payment architecture, somehow comparable to SWIFT, but more centered on digital currencies, especially the digital yuan (Deutsche Welle, 2020). As the two largest economies in the world move apart, we may well be heading toward a fragmented world divided into regional supply chains and production networks, independent innovation and technology regimes, and even separate financial systems.

In the absence of international cooperation, so glaring during the pandemic, another major geo-political consequence of the crisis is its impact on international organizations and institutions, many of whom have been found wanting during the crisis. Contrary to the course of the 2007-2008 GFC, institutions such as the G7 and G20 would fall short of a truly collective and efficient response. As a result, proposals to revisit the international governance and coordination architecture have been put forward, suggestin g for instance to replace the G7 and G20 with a platform to facilitate dialog and provide leadership in critical times. Such a platform would be built around a core group consisting of countries with the largest economies and populations, (Solana, Saz -Carranza and Rueda, 2020). The COVID crisis would also expose the need for a true reform at the United Nations whose bodies are all too often paralyzed by conflicts between great powers. Celebrating its 75th Anniversary in 2020, it behooves the Organization to revisit its institutional structure and to find consonance with the realities of the 21st century, now more than ever.

4.7. What Next?

COVID has brought about the worst global crisis since the Great Depression ninety years ago, with massive economic and geopolitical consequences. It is threatening emerging markets like no other. It is putting in jeopardy the fight against pove rty. It is amplifying trends that were already underway, exacerbating the debt burden, undermining globalization, and fostering an external environment much less propitious to growth and economic development. Admittedly all emerging economies were not equally hit, with China in particular a remarkable exception - the only major economy foreseen to achieve positive growth in 2020. The crisis is likely to reinforce the divide in the making for quite some time, among emerging markets, in particular between Latin America and Asia, but also between Asia and the rest of the world. The future remains highly uncertain, largely depending upon the evolution of the pandemic, and our ability to control and eventually stop it. What is sure, however, is that the new world that is eme rging, complex and fraught with uncertainty, will call more than ever for global cooperation to fight the threats of this fateful century.

References

Baldwin R., and Tomiura E. 2020, Thinking ahead about the trade impact of COVID-19 in Economics in the Time of COVID-19, CEPR Press, 2020, London.

Battersby, B, Lam W., and Ture E. (2020). Tracking the $9 Trillion Global Fiscal Support to Fight COVID-19. 20 May. IMF blog; https://blogs.imf.org/2020/05/20/ tracking-the-9-trillion-global-fiscal-support-to-fight- covid-19/

Benigno, G., Hartley J., Garcia-Herrero A., Rebucci A.and Ribakova E., 2020 "Credible emerging market central banks could embrace quantitative easing to fight COVID 19."
https://voxeu.org/article/credible-emerging-market-central-banks-could-embrace-quantitative-easing-fight-covid-19

Bolton P., Buchheit L., Gourinchas P-O., Gulati M., Hsieh C-T., Panizza U. and Weder di Mauro B., 2020, "Born Out of Necessity: A Debt Standstill for COVID-19 ", Centre for Economic Policy Research, CEPR policy Insights No 103, April 2020

Business insider, https://markets.businessinsider.com/commodities/news/oil-price-demand-consumption-market-never-rebound-coronavirus-energy-bp-2020-9-1029586867#

Casanova, L. and Miroux, A. 2019. *The Era of Chinese Multinationals: How Chinese Companies Are Conquering the World.* Academic Press. Elsevier. http://bit.ly/bookchina Paperback ISBN: 9780128168578 eBook ISBN: 9780128170601 DOI https://doi.org/10.1016/C2018-0-01595-9

[31] "Dual circulation" refers to a combination of "internal circulation" which focuses on boosting China's domestic market, and "external circulation" understood as trade with other countries.

China, Ministry of Foreign Affairs, 2020, "Vice Foreign Minister Ma Zhaoxu Gives an Interview on President Xi Jinping's Statement at the Virtual Event Opening of the 73rd World Health Assembly, 2020/05/19, MFA News, https://www.fmprc.gov.cn/mfa_eng/wjbxw/t1780893.shtml , accessed in August 2020

Deutsche Welles 2020, D.W. China leads in race for digital currency, 5 October 2020, https://www.dw.com/en/china-digital-currency-yuan-bitcoin/a-55134692?maca=en-VAS_Eng_NewsLens-21965-xml-media

ECLAC 2020, Dimensionar los efectos del COVID-19 parapensar en la reactivacion, Informe Especial COVID-19, No 2, Abril 2020, CEPAL. https://repositorio.cepal.org/handle/11362/45445

Eurodad 2020, "Shadow report on the limitations of the G20 Debt Service Suspension Initiative: Draining out the Titanic with a bucket?" by Iolanda Fresnillo, October 2020, https://www.eurodad.org/g20_dssi_shadow_report

Financial Times, June 14, 2020, Developing economies borrow more despite debt relief initiative, https://www.ft.com/content/54c545aa-01b5-4e95-8adc-e680f5d82be1

Financial Times, 4 August 2020, "Argentina strikes debt agreement after restructuring breakthrough", https://www.ft.com/content/ecb81529-7853-4403-95a9-577ee1ebc4b8?segmentId=780d8485-0eb4-59d7-e60a-832c2183ca88

Gerzson D; Lakner, C.; Castaneda A.; and Wu, H.; "The impact of COVID-19 (Coronavirus) on global poverty: Why Sub-Saharan Africa might be the region hardest hit ", World Bank Blog, April 2020, https://blogs.worldbank.org/opendata/impact-covid-19-coronavirus-global-poverty-why-sub-saharan-africa-might-be-region-hardest

Hallink 2020, "South Africa to Replace Emergency Coronavirus Cash Transfer with Basic Income Grant", Basic Income Earth Network (BIEN), 28 July 2020, https://basicincome.org/news/2020/07/south-africa-cash-transfer/

Hartley J. and Rebucci A., 2020, An Event Study of COVID-19 Central Bank Quantitative Easing in Advanced and Emerging Economies, NBER Working Paper No. 27339

ICAO 2020, "effects of novel coronavirus (COVID19) on civil Aviation", 20 July 2020, https://www.icao.int/sustainability/Documents/COVID-19/ICAO_Coronavirus_Econ_Impact.pdf

IIF, 2020, "GMV: The Growing Case for Flexible EM Exchange Rates », 6 April 2020, https://www.iif.com/Publications-View/ID/3929/GMV-The-Growing-Case-for-Flexible-EM-Exchange-Rates

ILO (2020a), *ILO Monitor sixth edition: COVID-19 and the world of work, Updated estimates and analysis, 25 September 2020*, https://www.ilo.org/global/topics/coronavirus/impacts-and-responses/WCMS_755910/lang--en/index.htm, accessed October 2020

IMF 2019a, World Economic Outlook June 2019

IMF 2020a World Economic Outlook June 2020 and World Economic Outlook October 2020

IMF 2020b, Global Financial Stability Report Update, June 2020

IMF 2020c, *Policies for recovery*, Fiscal Monitor, October 2020, Statistical Annexes

IMF 2020d, https://www.imf.org/en/Topics/imf-and-covid19/COVID-Lending-Tracker#CCRT

IMF 2020e, Policies for recovery, Fiscal Monitor, October 2020, Chapter 1

Kose A., Nagle P., Ohnsorge F., and SugawaraP., 2020. *Global Waves of Debt: Causes and Consequences.* Advance Edition. Washington, DC: World Bank. License: Creative Commons Attribution CC BY 3.0 IGO.

Nye A. and Rhee J., 2020, The Limits of the G20 Debt Service Suspension Initiative, Yale School of Management, https://som.yale.edu/blog/the-limits-of-the-g20s-debt-service-suspension-initiative

OECD 2020, OECD employment outlook 2020, https://www.oecd-ilibrary.org/sites/1686c758-en/index.html?itemId=/content/publication/1686c758-en

Quayum N.S. and R.K. Kpodar 2020, *Supporting Migrants and Remittances as COVID-19* Rages *On*, 11 September 2020, https://blogs.imf.org/2020/09/11/supporting-migrants-and-remittances-as-covid-19-rages-on/

Rashid H. and Stiglitz J., 2020, Averting Catastrophic Debt Crises in Developing Countries, Centre for Economic Policy Research, CEPR policy Insights No 104, July 2020

Reuter, 2020, https://www.reuters.com/article/markets-emerging-funds/emerging-market-bonds-stocks-inflows-continue-but-decelerate-in-august-iif-idUSL1N2FY0RP

Solana J., Saz-Carranza A. and E. Rueda , 2020, *From G20 to global leadership: a gap to be filled, https://dobetter.esade.edu/en/g20-global-leadership?_wrapper_format=html*

Sumner A., Hoy C., Ortiz-Juarez E. 2020, "Estimates of the impact of COVID-19 on global poverty", United Nations University UNU-WIDER, April 2020, Working paper 2020/43

UNCTAD 2019a "Current challenges to developing country debt sustainability "available at http://creativecommons. org/licenses/by/3.0/igo/.

UNCTAD 2019b, Trade and Development Report 2019 (UNCTAD/TDR/2019), Chapter IV, https://unctad.org/system/files/official-document/tdr2019ch4_en.pdf.

UNCTAD 2020b, Global trade impact of the Coronavirus pandemic

UNCTAD 2020c, International production beyond the pandemic, World Investment Report 2020, UNCTAD.

UNCTAD 2020d, Investment Trends Monitor, Issue 36, October 2020, https://unctad.org/system/files/official-document/diaeiainf2020d4_en.pdf

UNCTAD 2020e, Investment Trends Monitor, Impact of the COVID pandemic on Global FDI and GVCs, March 2020, https://unctad.org/system/files/official-document/diaeiainf2020d3_en.pdf

UNCTAD 2020f, Trade and Development Report 2020 (UNCTAD/TDR/2020), https://unctad.org/system/files/official-document/tdr2020_en.pdf

UNWTO, 2020, *International Tourist Numbers Down 65% in First Half of 2020*, Press release 15 September 2020, https://www.unwto.org/news/international-tourist-numbers-down-65-in-first-half-of-2020-unwto-reports

WIDER (2020) Press Release 8 April 2020, www.wider.unu.edu/news/press-release-covid-19-fallout-could-push-half-billion-people-poverty-developing-countries

World Bank 2020a, Global Economic Prospects, June 2020

World Bank 2020b, World Bank Predicts Sharpest Decline of Remittances in Recent History, Press release: 2020/175/SPJ, 22 April 2020, https://www.worldbank.org/en/news/press-release/2020/04/22/world-bank-predicts-sharpest-decline-of-remittances-in-recent-history

World Bank 2020c https://www.worldbank.org/en/news/press-release/2020/10/07/covid-19-to-add-as-many-as-150-million-extreme-poor-by-2021

World Bank 2020d, Projected poverty impacts of COVID-19 (coronavirus), Brief, 8 June 2020, https://www.worldbank.org/en/topic/poverty/brief/projected-poverty-impacts-of-COVID-19

World Food Programme 2020, https://www.wfp.org/news/covid-19-will-double-number-people-facing-food-crises-unless-swift-action-taken

WTO 2020a, Press/855Press Release, "
Trade set to plunge as COVID-19 pandemic upends global economy », 8 April 2020
https://www.wto.org/english/news_e/pres20_e/pr855_e.htm

WTO 2020b, "Trade falls steeply I first half of 2020", Press/858Press release, 22 June 2020, https://www.wto.org/english/news_e/pres20_e/pr858_e.htm)

WTO 2020c, *Trade shows signs of rebound from COVID-19, recovery still uncertain,* Press Release 862, 6 October 2020, https://www.wto.org/english/news_e/pres20_e/pr862_e.htm

PART I APPENDIX

E20 Milestones 2010-2019

Mihika Badjate - EMI Fellow, Cornell University (Ithaca, United States)
Andrew Lim - EMI Fellow, Cornell University (Ithaca, United States)

Introduction

To mark the EMI's 10th anniversary celebration, the EMI team, under the leadership of Mihika Badjate and Andrew Lim, embarked on a reflection of the achievements of the E20 (Chapter 3) over the last decade. Special thanks to George Abonyi, Ram Akers, Mohammed AlAmer, Danara Buvaeva, Timothy Heyman, Pial Islam, Nnamdi Iwuji, Gautam Jai, Kalman Kalotay, Klaudia Kokoszka, Nauman Lakhani, Miska Lewis, Tamia Lewis, Felix Lukman, Tansuğ Ok, Jun Park, and Nicola de Vera, and other Cornell alumni for their insightful contributions to the E20 milestones.

Starting the decade fresh out of a global recession and ending it amidst the bleak outlook of a global pandemic, it can be difficult to envision the next ten years without a feeling of existential dread at what the future holds. However, when re-examined through a pre-COVID-19 lens, the 2010s have truly been an excellent period for emerging markets and the E20 and give us hope for the decade to come.

From China and India's rapid growth and the African Free Trade Agreement to Colombia's 2016 peace deal and the increase in South Korean cultural exports, every country has witnessed milestones that have forever changed emerging economies, and indeed, the world.

For many countries—China, and to a certain extend India, for example—their development over the decade has allowed them to finally break the curse of emerging markets, the seemingly inescapable condition that keeps them rolling the boulder up the hill, like Sisyphus in the Greek myth, only for it to tumble back down again. Others are still stuck in the cycle—They *just* emerge at the top of the mountain, when a fresh crisis sends them back to the rocky bottom.

But even those nations that have declined economically have emerged on the world stage in other ways—Argentina, while struggling with its debt crisis, has become a technological leader in Latin America, and Brazil, despite its 2014 recession, succeeded in lowering its poverty rate in the first half of the decade.

Let this exploration of the achievements of the E20 serve as a reminder that when the world lies shrouded in fear and uncertainty, human ingenuity, imagination, and sheer, fiery willpower blaze through the darkness—a flame of hope above the ever-changing horizon of politics and false promises.

Selected Key Milestones Across the E20

Though many emerging markets have experienced great improvements and achievements, this decade has been dominated by the rising growth and success of Chinese multinationals. The decade started with China becoming the second-biggest economy by nominal GDP, and it ultimately ended with almost as many Chinese firms as the U.S. in the 2019 Fortune Global 500 ranking, and a higher number in the 2020 ranking. With the substantial rise of the Chinese economy, the decade also witnessed a great shift in the importance of Asian emerging markets in the global economy, a trend likely to be further emphasized by the November signing of the

2020 Regional Comprehensive Economic Partnership (RCEP), the largest trade agreement in terms of population and GDP, which includes the Asian emerging markets of China, South Korea, Indonesia, Malaysia, Thailand, and numerous others, though not India.

The following lists selected key milestones across the E20 from the past decade, providing a more global perspective before we examine each E20 country in more detail.

- 2011
  - China becomes 2nd largest world economy by GDP nominal
- 2012
  - Formation of Pacific Trade Alliance by Chile, Colombia, Mexico, and Peru
  - Russia enters the World Trade Organization
- 2013
  - China Belt & Road initiative, which includes 100+ countries across several continents
  - First Round of Regional Comprehensive Economic Partnership negotiations commences
- 2014
  - India becomes first nation to reach Mars orbit on first attempt with its Mars Orbiter Mission
  - Alibaba IPO, largest ever at the time at USD25 billion
- 2015
  - New Development Bank (NDB) launched by BRICS (Brazil, Russia, India, China and South Africa) countries
  - Asian Investment and Infrastructure Bank (AIIB) launched by China
  - China and Indonesia agree on a joint effort to build South-east Asia's first high-speed rail
  - Iran signs Joint Comprehensive Plan of Action (JCPOA) with P5+1
- 2016
  - Colombia peace deal between the FARC and the Colombian government
  - First Olympic Games in South America held in Rio de Janeiro, Brazil
  - The Chinese renminbi joins IMF SDR basket
  - Enlargement of Panama Canal
- 2017
  - Chile's ALMA Telescope Array plays crucial role in obtaining first "image" of a black hole
- 2018
  - African Free Trade Agreement signed, 54 member countries as of 2020
  - USMCA Trade Agreement signed by Mexico, Canada, and the U.S.
  - Colombia's Rappi on-demand delivery startup reaches unicorn status, the 2nd Latin American country to do so
- 2019
  - China becomes first country to land a spacecraft on the dark side of the moon
  - Saudi oil company Aramco IPO, the world's biggest ever, becomes biggest company by market cap in the world
  - India becomes 5th largest economy in the world by GDP nominal, data published in 2020
  - China is represented by 119 companies in the 2019 Fortune Global 500, almost as many companies as the U.S. for the first time

Asia

This decade witnessed a rapid growth of many Asian countries: the great shift to Asia. Bangladesh's growth rate topped 7%, The Philippines 6%, India became the world's 5th largest economy, and every other E20 country showcased milestones in economic, social, and technological areas. However, the biggest marker of the decade was the rise of China, which became the second largest economy.

Bangladesh

GDP US$302.6 billion

GDP per capita US$1,855.7

Extreme poverty ratio 14.8 (2016)

Population 161.4 million

Bangladesh has transformed over the last decade with its efforts in reducing poverty, increasing literacy, improving quality of life, and increasing average life expectancy. GDP has increased by a tremendous 162.5% from 115.3 billion in 2010 (average GDP

growth of 6.1% during the years of 2010-2014 and 7.4% during the years of 2015-2019), and GDP per capita more than doubled from USD781 to USD1,856.

In 2008, the Bangladesh Awami League, led by current prime minister and head of government Sheikh Hasina, took electoral victories over their main opposition, the Bangladesh Nationalist Party (BNP). The Awami League has made various campaign promises throughout the years, starting with numerous visions in its political manifesto in 2008: "Vision 2021" and "Digital Bangladesh." Overall, "Vision 2021" includes goals for working towards achieving sustainable development goals (SDGS), including the alleviation of poverty, reduction of unemployment, improvement in education and access, among others. "Digital Bangladesh," on the other hand, seeks to promote digitalization in Bangladeshi society. In 2014, another political manifesto was published by the ruling party, this time promoting "Vision 2041," a goal to make Bangladesh a fully developed nation by 2041.

Efforts by the government and the private sector in promoting digitalization have had impact. The percentage of the population using the internet grew 11.3 percentage points since 2010, a substantial increase considering only 3.7% of the population had been using the internet in 2010. Notably, the shift to the importance of the mobile phone in everyday life was also evident: mobile cellular subscriptions (per 100 people) grew from 46 in 2010 to 101.5 in 2019. An interesting illustration of this phenomenon in Bangladesh can be seen in the gradual shift to electronic payments, a trend recorded and researched by Bangladeshi consulting firm pi STRATEGY. In December 2015, it was reported that mobile financial transactions grew an average of 120% per year since 2011 (an average of USD1.3 billion in transactions monthly) and, by 2021, the overall usage of digital payments is expected to double.

In 2013, Bangladesh–until then a Low Human Development Index country–became a Medium Human Development country under the UNDP Human Development classification. In 2015, the World Bank stated that Bangladesh was among 10 countries to improve in its income bracket and was classified as a lower-middle income country. Three years later, the Committee for Development Policy (CDP) in the United Nations announced that Bangladesh was ready to graduate from being a Least Developed Country (LDC).

Bangladesh has become increasingly attractive for foreign investors, though recently it has been affected by a drop in global demand for Bangladeshi apparel. In 2018, foreign direct investments (FDI) reached a decade high by an overwhelming amount, with USD3.61 billion–a 67% increase from the previous year. China's USD1.30 billion in investments made the nation Bangladesh's top foreign investor. Though FDI inflows did decrease some years, over the decade, Bangladesh received an annual average of USD1.8 billion, a 277% increase from its average annual FDI inflows in the decade of 2000-2009 (USD478 million), with its energy sector being one of its most attractive industries.

Overall, Bangladesh's efforts in alleviating poverty, reducing income and gender inequality, and achieving other sustainable development goals will be paramount to the nation's upward mobility on the development ladder. Bangladesh will likely also need to enact additional economic reform in order to fully diversify its economy and provide new opportunities for its workforce.

Economic/Business	Technological	Social/Cultural/Other
2013 ⇒ Bangladesh officially engages in plans for the Bangladesh, China, India, and Myanmar Economic Corridor (BCIM)	**2018** ⇒ Bangladesh launches its first communication satellite, the "Bangabandlhu-1"	**2010** ⇒ Mohammed Yunus, a Bangladeshi citizen previously awarded the Nobel Peace Prize, is awarded the Congressional Gold Medal for empowering the impoverished
2015 ⇒ World Bank announces Bangladesh as now a lower-middle income country, previously a low income country		**2013** ⇒Alliance for Bangladesh Worker Safety formed, a five-year commitment to improving factory working conditions which involves North America's largest retailers including Walmart, Macy's, and Target.
2018 ⇒ United Nations announces that Bangladesh is ready to graduate from being a Least Developed Country (LDC)		**2014** ⇒ Bangladeshi Government announces "Vision 2041," a vision for the nation to reach developed status by 2041
		2019 ⇒ 6th year in a row with the highest score in gender equality in the South Asia region, according to the World Economic Forum

China or People's Republic of China

GDP US$ 14.343 trillion
GDP per capita US$ 10,262
Extreme poverty ratio 0.5 (2016)
Population 1.398 billion

If the last decade has been characterized by one thing, it is the emergence of China on the world stage. Over the past years, China has become an essential player in the world economy, impacting countries around the world, driving investment in Africa and Latin America, and becoming the world's second largest economy as of 2010. In addition, China has succeeded in drastically reducing poverty rates—the extreme poverty ratio reached a low of 0.5% in 2016, after starting out the decade as 11.2%, and the regular poverty ratio more than halved from 53.4% in 2010 to 23.9% in 2016. And in November 2020, the Chinese government declared that it had met its goal of eradicating extreme poverty.

One trend, seen in many developing nations, was the movement of people to cities from rural areas—in China, 2012 was the first year when urban population exceeded rural. And in 2016, the removal of China's one child policy, originally enforced to prevent rapid population growth, was hailed as a major milestone for the nation.

This decade has also been characterized by the rise of Chinese businesses and multinationals. In 2019, the number of Chinese firms in the Fortune Global 500 equaled the number of U.S. firms for the first time, and in 2020, China overtook the United States in number of firms on the ranking. For most of the decade, China was the first or second largest recipient of FDI in the world, and it also became one of the world's biggest investors: in 2018, outflows of FDI from China were the second largest in the world. China also emerged as a major global acquirer; in 2016, it was the second largest after the US. To name a few Chinese M&A examples, Geely acquired Volvo back in 2010, and in 2017, ChemChina acquired Swiss company Syngenta in the largest foreign acquisition at the time.

Economically, China has clearly risen to the top, becoming the second largest economy in the world. Despite a slowdown over the last few years, its average growth rate for the decade still stood at 7.7%. In 2010, it passed Germany to become the world's biggest exporter of goods. In 2013, it launched the Belt & Road Initiative. Based on massive infrastructure projects, the initiative aims at expanding trade and connectivity between countries and will increase China's influence across the globe. Finally, China has become a leader in technological and scientific development. In 2017, the nation launched its Artificial Intelligence Development Plan, investing enormous amounts into AI to make itself into a global leader in artificial intelligence.

In 2013, Chinese government launched one of the biggest infrastructure development projects in the world, the Belt and Road initiative (BRI, also known as OBOR) with more than 70 countries involved, and in 2015 the Asian Investment and Infrastructure Bank (AIIB), a new multilateral financial institution with more than 103 countries.

In 2019, China became the first nation to land a spacecraft on the dark side of the moon. And Chinese citizen Youyou Tu was awarded the Nobel Prize in Medicine in 2015 for her work in discovering a treatment for malaria.

Tech companies and startups have been thriving in China's cities—in 2014, Alibaba, the nation's leading ecommerce company and one of the biggest in the world, had the largest ever initial public offering (IPO) of a company ever seen at the time, raising USD25 billion. China has also led the world in innovation, both in patent applications and scientific publications and citations.

While the later part of the decade has brought a slowing in economic growth, trade wars with the U.S., and the COVID-19 pandemic, China will certainly continue to play a key role in the global economy in the decade to come.

Economic/Business	Technological	Social/Cultural/Other
2010 ⇒ China becomes world's biggest goods' exporter	**2013** ⇒ Soft landing on moon, 3rd country to do so, first in 37 years since the USSR	**2010** ⇒ Liu Xiaobo, Chinese citizen, wins Nobel Peace Prize
2010 ⇒ Geely acquires Volvo	**2014** ⇒ Alibaba IPO, largest ever at the time at USD25 billion	**2012** ⇒ City populations exceed rural population for the first time recorded
2010 ⇒ China becomes 2nd largest economy by GDP nominal	**2017** ⇒ Launch of Artificial Intelligence Development Plan	**2016** ⇒ Official end of one child policy after 35 years
2013 ⇒ Belt & Road Initiative launched (BRI, OBOR)	**2019** ⇒ China ranks first in number of scientific papers and citations for first time in decade	**2016** ⇒ renminbi joins IMF SDR basket
2015 ⇒ Launch of the Asian Infrastructure and Investment Bank (AIIB)	**2019** ⇒ China becomes first nation to land a spacecraft on the dark side of the moon	
2017 ⇒ ChemChina acquires Syngenta, China's biggest overseas acquisition		
2019 ⇒ China overtakes U.S. to become leader in number of patent applications		
2020 ⇒ China has 124 firms in Fortune Global 500 ranking, versus 121 for US firms		

India or Republic of India

GDP US$ 2.9 trillion
GDP per capita US$ 2,104
Extreme poverty ratio 21.2 (2011)
Population 1.366 billion

India, with a nominal GDP of USD2.875 trillion, has come a long way in the last decade, emerging as the world's fifth largest economy in 2020 above the UK and France, and displaying a high average annual GDP growth rate of 6.7% for the decade.

The nation implemented a sweeping tax reform in 2017, simplifying the country's complex and confusing taxation system by implementing one goods and services tax (GST) to increase transparency and tax revenue. The GST was largely a success, increasing tax revenues despite issues with compliance.

The digitalization of the Indian economy is one of the biggest trends of the last decade. The percentage of the population using the internet, while still low, rose from 7% in 2010 to 34% in 2017. The 2016 demonetization of 1000 and 500-rupee notes drove increasing digitalization of payments, and the "*Aadhaar* Act" standardized ID systems (identity schemes) to create a system hailed as one of the most sophisticated in the world despite its controversies.

India has registered significant technological and scientific advances. In 2019, the country's space agency launched the Chandrayaan-3 in its 3rd attempt at a soft landing on the moon's surface, expected to reach in 2021. And India was the first nation to reach Mars on its first attempt with its Mars Orbiter Mission in 2014. The nation has also held an increasing role in the pharmaceutical industry, with its pharmaceutical market growing 13-14% over the last few years, and its leadership in the production of drugs and vaccines around the world.

India's burgeoning startup scene has drawn external investment—Flipkart, the leading ecommerce company in India, valued at over USD20 billion, was acquired by Walmart in 2018. India is ranked 4th among countries with the most unicorn startups, with over 19 startups valued at USD1 billion or more. The nation currently has 7 companies on the Fortune Global 500 ranking.

In June, foreign exchange reserves reached an all-time high at USD493.48 billion, a sign of hope for a country which is struggling with the ongoing COVID-19 pandemic.

Economic/Business	Technological	Social/Cultural/Other
2016 ⇒ Demonetization	**2013** ⇒ Aadhar Card ID system implemented	**2011** ⇒ India wins Cricket World Cup
2017 ⇒ Tax reform, Goods & Services Tax (GST) implemented	**2014** ⇒ India becomes first nation to reach Mars orbit on first attempt with its Mars Orbiter Mission	**2014** ⇒ India declared polio free by WHO
2018 ⇒ Walmart acquires Flipkart, 77%	**2016** ⇒ Aadhaar Act gives legal backing to Aadhar card system	**2014** ⇒ Indian children's education activist, Kailash Satyarthi, wins Nobel Peace Prize along with Malala Yousafzai
2019 ⇒ Passes USD2000 GDP per capita mark	**2019** ⇒ Launch of Chandrayaan 3, to attempt soft landing on moon's surface in 2021, making India 4th country to do so	**2018** ⇒ Decriminalization of homosexuality
2020 ⇒ Ranked 5th largest economy in the world	**2010-2020** ⇒ Widespread digitization of Indian economy	

Indonesia or Republic of Indonesia

GDP US$ 1.1 trillion
GDP per capita US$ 4,136
Extreme poverty ratio 4.6 (2018)
Population 271 billion

Indonesia has seen improvements in the past decade, with advances in reducing poverty, embracing digitalization, and improving quality of life, supporting economic growth. From 2010-2018, Indonesia's annual GDP growth rate was consistently around 5-6%, and its annual GDP per capita growth rate was around 3-4%. Indonesia is currently the world's 16th largest economy in terms of nominal GDP. Additionally, its extreme poverty ratio dropped from 15.7% to 4.6%, and the overall poverty ratio dropped from 77.8% to 56%. Access to the internet and mobile phones increased dramatically, with the percentage of the population using the internet increasing by 29%. Life expectancy also went up by 2.3 years. Notably, in 2020, the World Bank upgraded Indonesia's economic classification: no longer in the lower middle-income category, Indonesia is now considered an upper middle-income country.

Indonesian economic and social policy has certainly played a role in this decade of success. In 2005, Indonesia announced a 20-year plan for economic and social development, the Rencana Pembangunan Jangka Menengah Nasional (RPJMN), which is split up into 5-year medium-term plans. In 2014, the Indonesian government introduced universal health insurance in its "Jaminan Kesehatan Nasional" (JKN), and, through the operation of BPJS Kesehatan, a government agency involved with health-related social security, all Indonesians are able to utilize the benefits from this legislation. In 2017, it was reported that Indonesia's tax amnesty program was one of the world's most successful: the Indonesian government was able to gather USD330 billion through the program.

One of the top five countries for FDI inflows in Asia, the country has been an attractive destination for foreign investors. From 2010-2019, it recorded average annual FDI inflows of around USD17.8 billion. Indonesia may become even more attractive for foreign investors in the future, with President Joko Widodo's promises to further incentivize foreign investments.

Indonesia's start-up scene has been a highlight in the last decade, and the nation now has five private companies valued at over USD1 billion: Go-jek, Tokopedia, Traveloka, Ovo, and Bukalapak. In fact, Goj-Jek, Indonesia's most valued unicorn at USD10 billion, was founded in 2010 and continues to provide online/technological services with delivery, transportation, and shopping. Notably, Indonesia's efforts in digitalization have been largely led by the private sector, where companies are attempting to digitize every industry. Start-ups, such as Sayurbox, which has set up a digital process to link farmers and consumers, and Aruna, which has focused on expanding and digitalizing the fishery market, are prime examples of this.

The Indonesian middle class also has seen significant improvements and will likely be a key to future economic growth. Through efforts such as increasing the minimum wage and subsidizing urban homeownership, the Indonesian government has reduced poverty and allowed the middle class to grow tremendously since 2002. The middle class has had annual growth rates of 10%, and it now consists of around 52 million Indonesians. Additionally, the potential for a greater middle class is yet to be unleashed. A 2020

World Bank report classified 115 million Indonesians in the "aspiring middle class" category—individuals that are not considered poor or vulnerable but are not yet considered to be middle class.

Indonesia has the potential to become a greater economic power, and its efforts in reducing poverty, promoting its middle class and decreasing income inequality, utilizing its geographically and ethnically diverse population, and working towards s ustainable development goals will be crucial in achieving this.

Economic/Business	Technological	Social/Cultural/Other
2015 ⇒ China and Indonesia agree on a joint effort to build South-east Asia's first high-speed rail that would connect West Java Capital Bandung and Jakarta.	**2010** ⇒ Indonesia's currently largest unicorn, Go-Jek (ranked 23rd in terms of valuation of all unicorns), founded. Go-Jek provides online/technological services with delivery, transportation, and shopping.	**2019, 2012** ⇒ Two Indonesian landmarks made UNESCO heritage sites: The Ombilin Coal Mine of Sawahlunto and landscapes in the Bali province **2014** ⇒ Indonesia announces plans to introduce universal health insurance in its "Jaminan Kesehatan Nasional" (JKN) BPJS Kesehatan **2019** ⇒ Vision of Indonesia 2045 announced, goals for Indonesia to be a fully developed nation by 2045

Iran or Islamic Republic of Iran

GDP US$ 445.3 billion
GDP per capita US$ 5,520
Extreme poverty ratio 0.3 (2015)
Population 83 million

The Islamic Republic of Iran has the potential for substantial growth but has been significantly affected by international sanctions and political and religious turmoil in the past decade. Due to widespread discontent over Iran's nuclear program, international sanctions led by the United States were enacted throughout the years, significantly hindering the growth of the Iranian economy. In 2015, Iran agreed to a nuclear deal with the P5+1 (China, France, Russia, United Kingdom, United States, and Germ any) to restrict its nuclear activities, and, in return, international sanctions were lifted. As a result, Iran's GDP grew significantl y in 2016, with a growth rate of 13.4%. Two years later, however, the Trump administration reinstated U.S. sanctions due to discont ent with Iranian policies on militant groups in the Middle East and its ballistic missiles. In response to these sanctions and the ass assination of Qaesem Soleimani, former major general in the Islamic Revolutionary Guard Corps and the commander of its Iran's Quds Force, Iran suspended various elements of the treaty, short of completely abandoning it as of early 2020.

However, despite shortcomings, several aspects have improved since 2010. In response to sanctions significantly hindering its oil industry, Iran has begun to increasingly diversify its economy and improve its other industries. Iran's steel production, for instance, has greatly increased since 2010, producing around 2200 thousand tons of steel monthly in 2019 (Iran produced aroun d 1000 thousand tons monthly in 2010). Other notable examples include Iran's copper and petrochemical industries. Additionally, Iran's start-up scene, in response to sanctions, has had multiple highlights. For example, Snapp, a ride-hailing application similar to Uber, was founded in 2014 and, in 2019, the application was hosted around two million rides a day: this allowed it to become one of the world's largest ride-hailing companies.

Iran has also seen other improvements. For example, it has fully embraced an age of in creasing digitalization—the percentage of the population using the internet increased by 54% over the years 2010-2018. Life expectancy also went up, with average expectancy increasing by three years. Furthermore, education access has improved, and Iran's t ertiary school enrollment has grown by 24%. Iran has also been increasingly engaged in science and technology development. For example, SCImago Journal Rank —an organization that considers the number of scientific publications and citations to rank countrie s—placed Iran 10th and 12th with regard to its scientific engagement in energy and chemistry, respectively in 2019. Considering all scientific areas, SCImago Journal Rank

has Iran at 15th. Iran's space program has also been very active. In the past decade, Iran reportedly sent two monkeys into space along with numerous other satellites. The Iranian Space Agency has also set its eyes on a future manned space mission.

Iran has been able to attract foreign investors, especially during the absence of international sanctions. For example, after the signing of its nuclear deal in 2015, it recorded significant FDI inflows in 2016 and 2017, gathering USD3.4 and USD5.0 billion, respectively. Between 2010 and 2019, Iran also recorded an estimated 98% overall increase in FDI inward stocks (USD29.0 billion in 2010, USD57.4 billion in 2019). Iran's coal, oil, gas, and renewable energy industries are its most popular industries among foreign investors.

Overall, Iran's efforts in overcoming international sanctions, stabilizing domestic turmoil, and mitigating the effects of the Dutch disease are important in its journey to become a fully developed nation. Iran has made gains in the last decade and has the potential for more growth in the future.

Economic/Business	Technological	Social/Cultural/Other
2017 ⇒ Sixth Five-Year Economic, Cultural, and Social Development Plan passes with a strong emphasis on promoting foreign investments.	**2008** ⇒ Iran launches its first expendable satellite into orbit, the Safir, the first of many successes for the Iranian space program'' **2013** ⇒ Iran reportedly sends two monkeys into space "Pishgam" and "Fargam."	**2015** ⇒ Signing of the Joint Comprehensive Plan of Action (JCPOA) with P5+1 **2017** ⇒ Iranian director Asghar Farhadi wins an Oscar for best foreign language film with"The Salesman," his second Oscar after winning one in 2012 with "A Separation" **2019** ⇒ Iranian Hyrcanian Forests introduced as a UNESCO World Heritage Site, the 14th site introduced in the last decade

Malaysia

GDP US$ 364.7 billion
GDP per capita US$ 11,414
Extreme poverty ratio 0.1 (2011)
Population 32 million

Malaysia exhibited steady economic growth during the past decade, averaging 5.8% GDP growth during 2010-2014, and slightly lower growth of 4.9% during 2015-2019.

The Malaysian government has made an effort to transform the economy through development and digitalization. In 2010, it launched an Economic Transformation Program, with the goal of turning the nation into a high-income economy by 2020 by achieving a GDP per capita of USD15,000. While the program did not quite reach its goal and economic growth will no doubt be stifled as a result of the COVID-19 pandemic, it was successful in increasing GDP per capita from USD9.041 to USD11,415 and creating hundreds of thousands of new jobs.

In addition, Malaysia has demonstrated improvements in the social area. For instance, in 2010, the Malaysian Shariah, or Syariah Court, appointed its first two female judges, a landmark event given the country's human rights struggles. In 2018, notably, Wan Azizah Wan Ismail became the first-ever female Deputy Prime Minister. Additionally, minimum wage laws were introduced for the first time in 2012, with workers guaranteed at least USD297 a month and standard wages rising by up to 50% in some regions. And in 2014, a law banning transgender Muslims from cross-dressing was overturned. Although the law was upheld in court a year later, the initial ruling signified a win for LGBTQ activists, as well as the shifting attitudes in the nation.

The 2013 Malaysia Education Blueprint initiative for primary and secondary education was instrumental in increasing technological access in schools and providing additional resources in the public education system. Malaysia is ranked as one of the most digitally connected countries in Southeast Asia, with 81.2% internet penetration in 2019, nearly a 25ppt increase from 56.3% in 2010.

In 2015, the 1MDB scandal—revolving around the misappropriation of billions of dollars from the state fund—rocked the nation, triggering the ousting of the ruling party for the first time in 60 years during the 2018 election.

Economic/Business	Technological	Social/Cultural/Other
2010 ⇒ Launch of economic transformation program	**2013** ⇒ Malaysia Education Blueprint	**2010** ⇒ Malaysian Shariah court appoints first female judges
2017 ⇒ Launch of the National Transformation 2050 Agenda		**2012** ⇒ Minimum wage introduced
2020 ⇒ Malaysia has 1 firm in Fortune Global 500 ranking		**2014** ⇒ Law banning crossdressing is overturned

Pakistan or Islamic Republic of Pakistan

GDP US$ 278.2 billion
GDP per capita US$ 1,285
Extreme poverty ratio 3.9 (2015)
Population 217 million

Pakistan grew 3.9 % over the decade, reflecting improved performance in the second half of 2010 with a 4.5% growth rate between 2015 and 2019. Its GDP has grown from USD177.2 billion in 2010 to USD278.2 billion in 2019, and its GDP per capita increased from USD987 (2010) to USD1,285 (2019).

In 2010, Pakistan added the 18th Amendment to its Constitution, reducing the president's powers by removing the ability to dissolve the parliament. Thus, the president's role in the government was reduced to a more ceremonial one. However, the move created some instability in an economy that was already struggling.

In 2013, the IMF approved a loan of USD6.6 billion to get Pakistan back on its feet, boost growth, and create economic stability. Since then, the country has regained a measure of balance, though it again entered into a USD6 billion IMF deal in 2019.

Over the last decade, Pakistan has reduced its extreme poverty rate by more than half, from 8.3% in 2010 to 3.9% in 2015. It has also greatly improved education, with about 9% of the population attending primary school. In 2014, Malala Yousafzai, a teen activist for girls' education, won the Nobel Peace Prize, putting a spotlight on education in Pakistan.

Additionally, in 2012, the Punjab Education Reform Roadmap was launched - a plan to improve access to education for all children in Punjab. Since then, Grade 4 English proficiency has increased 12% in the region, a growth attributed in part to the success of the education program.

In 2016, Pakistan signed a 15-year deal with Qatar ensuring the supply of liquefied natural gas, an important step in a country that has struggled with electricity issues. The same year, the China Pakistan Economic Corridor was launched, a set of infrastructure initiatives to boost Pakistan's economy that included Gwadar Port, the deepest seaport in the world and a part of China's Belt and Road Initiative.

In 2018, a new party took over leadership in Pakistan's government, led by Imran Khan. The new administration implemented a controversial corruption crackdown and gave greater autonomy to the Federal Board of Revenue (FBR) and State Bank in order to collect taxes more effectively.

The new administration also put new emphasis on technological development and entrepreneurship, creating the Ministry of Science and Technology in 2019 and putting resources into funding startups and research through the establishment of national incubation centers. Daraz, a Pakistani e-commerce company, was acquired by Alibaba in 2018.

Despite economic threats from the toll of COVID-19 around the world, Pakistan has done relatively well in controlling the pandemic.

Economic/Business	Technological	Social/Cultural/Other
2013 ⇒ IMF package with a USD6.6 billion loan	**2016** ⇒ National Incubation Center launched for funding startups	**2010** ⇒ Constitutional reform reduces presidential powers
2016 ⇒ 15-year LNG deal with Qatar	**2018** ⇒ Alibaba/Daraz acquisition	**2012** ⇒ Punjab Education Reform Roadmap launched
2016 ⇒ China Pakistan Economic Corridor partially launched	**2019** ⇒ Ministry of Science and Technology created, highlighting new government emphasis on tech development	**2014** ⇒ Malala Yousafzai wins Nobel Peace Prize, youngest recipient ever at age 17
2018 ⇒ Daraz e-commerce company acquired by Alibaba		
2019 ⇒ IMF new USD6 billion facility to support Pakistan's economic reform program		

Philippines or Republic of the Philippines

GDP US$ 376.8 billion
GDP per capita US$ 3,485
Extreme poverty ratio 6.1 (2015)
Population 108 million

The Philippines, with a USD376.8 billion GDP and USD3485 per capita, has been one of the fastest-growing Asian economies in the last decade, with a GDP growth of 6.2% between 2010 and 2014 and 6.5% between 2015 and 2018. While the country struggles with income inequality, natural disasters, and militancy, the government has put several programs and laws in place that have sustained its GDP growth. In 2018, the Philippines joined the High Human Development Index category of the UNDP.

In 2018, the government passed the Ease of Doing Business Law, which encourages the removal of cumbersome red tape and regulation, an increase in efficiency, and a reduction in corruption in all government sectors. Since then, the Philippines has jumped in the World Bank's Doing Business rankings. The Rice Tariffication bill passed in 2019 has also proved beneficial, removing rice import quotas and adding tariffs, thereby boosting the supply of the staple crop, though it has negatively impacted the farmers who must compete.

The Philippines has also come out of the decade with increased peace and security for parts of its population, having signed peace deals with the Moro Islamic Liberation Front rebel group (MILF). While terrorist organizations affiliated with the Islamic State and Al Qaeda still plague the Mindanao region, the island has regained some measure of security, enabling the lifting of martial law this year.

The past decade has also seen a heavy increase in investment in infrastructure. The islands' geographies, along with a natural proneness to natural disasters, make solid infrastructure and transportation increasingly important in the Philippines. The 2017 "Build, Build, Build" Program is ambitious, aiming to eliminate the long traffic-ridden commutes for which the nation's cities are notorious. The administration plans to complete as many as 100 major projects, including the development of New Clark City and the construction of bridges, roads, and airports. It is anticipated that the infrastructural development program will play a large role in the country's recovery from the COVID-19 pandemic.

Economic/Business	Technological	Social/Cultural/Other
2017 ⇒ Build, Build, Build Program announced		**2014** ⇒ MILF rebel group peace deal, ending 40+ years of violence
2018 ⇒ Ease of Doing Business law goes into effect		**2017** ⇒ The Philippines wins its arbitration case against China over the South China Sea
2018 ⇒ The Philippines joins the High Human Development index category of UNDP		**2018** ⇒ Maria Ressa, Filipino journalist, is named a "Time Person of the Year" for her work in defending the freedom of the press
2019 ⇒ Rice Tariffication bill		

Saudi Arabia or Kingdom of Saudi Arabia

GDP US$ 793 billion
GDP per capita US$ 23,140
Extreme poverty ratio unavailable
Population 34 million

Saudi Arabia's USD793.0 billion GDP, with USD23,140 per capita, places it as the 18th largest economy in the world. The absolute monarchy entered the decade with a USD60 billion arms deal with the United States, establishing the countries' military relationship for the next two decades. The past ten years have heralded economic change, as Crown Prince Mohammad Bin Salman has sought to redefine the nation's image on the world stage but was faced with challenges towards the end of the decade, such as those related to the killing of journalist Jamal Khashoggi. In 2016, the Saudi government announced its "Vision 2030" plan th at aims to diversify the economy away from oil, reduce unemployment, and take steps to secularize a country that is deeply rooted in Islamic law. As part of this plan, Aramco, the kingdom's oil company, was put on the stock exchange for the first time in December 20 19. In addition, the development of a solar energy plant through the Sakaka Solar Project began in 2018.

In keeping with the goal of secularization, the government has slowly expanded women's rights, allowing them to drive as of 2017, and removing the requirement that women obtain permission to travel abroad from their male relatives in 2019. While female participation in the workforce is still low, with female unemployment at 30.8%, women's labor force participation rates increased by 7 percentage points the percentage of the workforce made up of women rose 8.3% between 2016 and 2019, marking a shift in the ability of Saudi women to pursue their own careers points boutside of the home.

Long deemed as anti-Islamic, public cinemas and music concerts were once again allowed in Saudi Arabia in 2018, and the country's first tourism visa program was established last year, with hopes that the industry would contribute to a rising GDP .

Ever since gaining control of Saudi Arabia's Public Investment Fund (PIF) in 2015, P rince Mohammad Bin Salman has funneled massive amounts of money into companies around the world, including tech companies in Silicon Valley such as Uber, Tesla, and Facebook. The PIF also pledged an investment of USD200 billion in SoftBank to build solar p arks across the country and reduce its reliance on oil.

Economic/Business	Technological	Social/Cultural/Other
2010 ⇒ U.S. USD60 billion arms deal	**2017** ⇒ Amazon acquired Souq, middle eastern e-commerce company	**2011** ⇒ Women gain the right to vote and run for office
2016 ⇒ Government announces Vision 2030 plan that aims to end dependence on oil	**2019** ⇒ Saudi Public Investment Fund announces USD1b investment in Lucid Motors' electric vehicle, as part of a pattern of investing in tech companies	**2015** ⇒ King Abdullah dies, King Salman takes the throne, Mohammed bin Salman becomes crown prince
2018 ⇒ Development of the Sakaka Solar Energy project begins, with the aim to diversify away from oil and into renewables	**2019** ⇒ Middle East based company Careem announces acquisition by Uber	**2017** ⇒ Corruption crackdown
2019 ⇒ Government announces new tourist visa program, with hopes of increasing tourism revenue		**2017** ⇒ Women are given the right to drive
2019 ⇒ Saudi oil company Aramco IPO, the world's biggest ever		**2018** ⇒ Ban on public cinema is lifted
2020 ⇒ Saudi Arabia has 1 firm in Fortune Global 500 ranking		**2019** ⇒ Lifting of some male guardianship laws, allowing women to travel without permission

Korea or Republic of South Korea

GDP US$ 1.6 trillion
GDP per capita US$ 31,762
Extreme poverty ratio 0.2% (2012)

Population 52 million

South Korea, the world's 12th largest economy with a nominal GDP of USD1.6 trillion and a GDP per capita of USD31,762, grew at an average annual rate of 3.3% over the last decade. In 2018, its GDP per capita crossed USD30,000, a milestone for the country, which now exceeds that of Greece, Portugal, and Spain.

President Park Geun-hye became the first woman to be elected to office in 2012, marking a new era for women in a growing economy. The female labor force participation rate increased 5.3%6 percentage points between 2010 and 2020, and over 70% of women aged 25-34 are working. In a culture where it has long been tradition for women to stay at home to take care of the household, women are joining the workforce and leading the country forward.

South Korea's economy has long been driven by conglomerates such as Samsung and Hyundai. In 2018, Samsung ranked #1 in investment in research and development, spending about USD15 billion on what is considered one of the most crucial factors to a business' success. Many conglomerates have begun incubating startups as well, and the government has been actively promoting entrepreneurship since the rollout of its 2013 Creative Economy Plan. In 2018, the government announced that it would allocate about USD10 billion for venture capital support by 2022 to boost innovation and technological development. The startup scene has expanded dramatically, with 700 startups valued at over USD1 million each compared to just 80 in 2015. Today, South Korea is home to ten so-called unicorn companies, at over USD1 billion each. The nation also launched its first satellite into Earth's orbit in 2013, joining only a handful of other countries that had successfully done so.

The past few years have also ushered in the thawing of hostile relations between South and North Korea. In 2018, just months after the two countries participated under the unified Korean flag in the PyeongChang Winter Olympics, Kim Jong-un met with President Moon Jae-in to discuss a reduction in nuclear weapons, amongst other strategies to restore peace between the two countries. However, it remains to be seen how long this trend lasts, given the nations' fluctuating relationship over the years.

On the cultural front, the nation has dramatically increased its exports in cultural commodities, while Korean pop music and cinema have swept the West. 2018 marked the first year that South Korea's cultural exports, in the form of music, television series, and films, exceeded its exports in home appliances. And in February 2020, Bong Joon-ho's *Parasite* became the first foreign film to win the Best Picture at the Academy Awards. The Korean pop group BTS also recently became the first group to stay in first place on the U.S. Billboard charts for ten weeks.

While the COVID-19 pandemic has slowed South Korea's growth going into 2021, its relatively fast recovery and the government's USD9.8 billion stimulus package are expected to mitigate some consequences of the COVID crisis, mirroring its fast recovery from the 2008 financial crisis.

Economic/Business	Technological	Social/Cultural/Other
2013 ⇒ Creative Economy Initiative launched	**2013** ⇒ First Korean made satellite launched into orbit	**2010** ⇒ G20 Summit hosted in Seoul
2018 ⇒ Government announces USD10 million VC support by 2022	**2018** ⇒ Samsung ranks #1 in companies with the most R&D investment, according to EU industrial R&D investment scoreboard	**2012** - K-pop hit Gangnam Style tops the charts
2018 ⇒ GDP per capita crosses USD30,000		**2018** ⇒ Winter Olympics held in Pyeongchang, N. & S. Korea march under same flag
2018 ⇒ Samsung smartphone sales top other smartphone companies		**2018** ⇒ Meeting in North Korea to end hostile relations
2018 ⇒ FDI outflows reach peak at USD35.5 billion (World Bank)		
2019 ⇒ Korea has 16 firms in Fortune Global 500 ranking		

Thailand or Kingdom of Thailand

GDP US$ 543.6 billion

GDP per capita US$ 7,808
Extreme poverty ratio 0.1% (2012)
Population 70 million

Thailand has seen improvements in the past decade, though growth has slowed recently. In the first and second half of the decade, GDP growth was 3.8% and 3.4% respectively. In 2011, Thailand experienced its worst floods in fifty years, requiring a significant amount of relief: annual GDP growth was 0.8% that year. In 2014, a military coup d'état led by the National Council for Peace and Order took over the government, causing domestic and global concern and resulting in an annual GDP growth rate of 1% that year. Without these outlier years, Thailand's average annual growth in the past decade would have exceeded 4 %. In the past decade, Thailand saw a reduction in poverty, with its poverty ratio decreasing from 17.8 in 2010 to 8.6 in 2018. Thai citizens' average life expectancy increased by around 2.5 years. Perhaps most impressively, Thailand's unemployment rate is one of the lowest in the world, being only at around 0.716% in 2019. Thailand made significant efforts in embracing digitalization, and the nation's percentage of population using the internet increased from 22.4% to 56.8% over the decade.

In 2017, the Thai government announced its "Thailand 4.0" plan to escape the "middle-income" trap and to become a high-income nation in around five years. The four objectives of this plan include creating an innovation-based economy based on digitalization and R&D, a significant reduction in income inequality, an emphasis on improving Thai higher education, and efforts for greater environmental awareness. In 2017, Thailand reached a 1.0% R&D to GDP ratio, a 0.8percentage points increase from 2009. A crucial aspect of Thailand 4.0 includes a project to accelerate economic growth through its "Eastern Economic Corridor (EEC)" plan that seeks to focus on encouraging economic development in the provinces of Chachoengsao, Chonburi, and Rayong, three provinces that make up Thailand's eastern coast. Historically, Thailand's eastern coast has been key in engaging in trade and investment with neighboring and foreign countries, and thus, through efforts in promoting infrastructure, advancing various industries, and improving transportation systems in this region, the EEC seeks to embrace modernization and globalization in Thailand's economy.

Thailand 4.0 also includes visions to further attract foreign investors. In 2019, the Thai government released "Thailand Plus''—a collection of investment incentives that include, in certain cases, a 50% reduction in corporate income tax for five years, incentives for corporations to establish apprenticeship programs and institutions within the STEM field, amongst others. Thailand Plus also provides solutions for companies looking to relocate as a result of the US-China trade conflict.

In spite of Thailand's achievements, more will have to be done for the nation to move further up the development ladder. Promoting higher productivity to respond to declining exports and domestic demand, enhancing tertiary education and R&D, attracting greater foreign investments, and recovering from the COVID pandemic will all be crucial for Thailand going forward.

Economic/Business	Technological	Social/Cultural/Other
2011 ⇒ Thailand now considered a upper-middle income country by the World Bank	**2017** ⇒ Bangkok hospital uses robot assistance in brain surgery, for the first time in Asia.	**2015** ⇒ "Gender Equality Act" passed, providing stricter penalties and regulation on gender discrimination
2019 ⇒ "Thailand Plus", a package of significant investment incentives, is announced.	**2017** ⇒ "Thailand 4.0" plan announced to create an innovation-based economy with emphasis on digitalization and R&D.	**2019** ⇒ First elections since military coup d'état in 2014.
2020 ⇒ Thailand has 1 firm in Fortune Global 500 ranking		**2019** ⇒ First law under the Eastern Economic Corridor (EEC) plan

Turkey or Republic of Turkey

GDP US$ 754.4 billion
GDP per capita US$ 9,042
Extreme poverty ratio 0.1% (2018)
Population 83 million

Turkey had experienced significant growth in the early 2000s due to ambitious reforms and significant improvements in reducing poverty, developing infrastructure, and promoting its economy (Turkish total GDP grew from 200.252 billion in 2001 to a

staggering 771.902 billion in 2010). During the 2010s, it continued to see improvements in a number of areas, though the nation also suffered from political and economic instability. From 2010-2014, the Turkish average annual GDP growth was 7.6%, but dropped to 4.1% from 2015-2019. The latter half of the decade, in particular, was marked by a failed but deadly coup d'état in 2016, a currency crisis in 2018, and a recession that followed in 2019. Despite this, Turkey made progress in mitigating poverty, embracing digitalization, and advancing quality of life. Comparing 2018 to 2010, Turkey reduced its extreme poverty ratio from 0.8 to 0.1, and overall poverty ratio decreased from 15.9 to 9.2. Turkey's percentage of the population using the internet also rose from 39.8% to 71.0%. Average life expectancy increased by around three years, to 77.

In 2013, President Recep Tayyip Erdogan announced Turkey's "Vision 2023," an aspiration for the nation to become one of the world's top ten economies by the Republic's 100th Anniversary in 2023, with a GDP of USD2.6 trillion and a GDP per capita around USD25,000. Included in the vision are goals to improve Turkey's "trade, energy, health care, and transport sectors." Improvements in transport infrastructure have already been seen—in 2019, the Otoyol 5 highway was completed, cutting an eight-hour trip from İzmir to the Istanbul area to only three and a half hours. Other large scale infrastructure projects have been successful, such as the development of an Marmaray underground rail system in Istanbul, completed in 2019. In recent years, the tourism industry has also grown, with a 20%+ increase in tourism between 2017 and 2018 alone.

Scientific and technological research has also been emphasized, with R&D expenditure reaching 1% of GDP as of 2017, and Turkey is ranked #18 in the world in scientific publications and citations. The nation has also been promoting the production of electric vehicles, to stimulate the renewable energy industry.

Large conglomerates and the joint venture model have been behind Turkey's transformation from an agriculture to an industry and services-based economy. The Sabanci Holding, Eczacıbaşı Holding, Koç Holding and Doğuş Holding are some of the conglomerates engaged in multiple economic sectors that have driven industrialization.

In 2019, Turkey had eight companies in the Forbes Global 2000 and one company in the Fortune Global 500. That year Koç Holding celebrated 18 years on the Fortune Global 500. Founded in 1963, the company is involved in a variety of sectors, including energy, automotive, consumer durables, and finance. In 2019, Forbes named Koç Holding as the 35th world's best employer.

Turkey's health industry has also shown enormous growth, with the building of a strong health infrastructure that ultimately benefited the nation during the pandemic. In fact, the nation has become a destination for "health tourism" —people from all over the world travel there to receive medical care.

While Turkey faced challenges in the latter half of the decade, the nation has remained steadily resilient in the face of geopolitical issues and failed accession negotiations with the EU. Its young, skilled population and its focus on technology and scientific research are key assets for Turkey going forward.

Economic/Business	Technological	Social/Cultural/Other
2013 ⇒ "Vision 2023" Plan announced **2019** ⇒Turkish company Koç Holding celebrates its 18th year on the Fortune Global 500 list **2020** ⇒ Turkey has 1 firm in Fortune Global 500 ranking	**2019** ⇒ Marmaray, Istanbul underground train system, is completed	**2018** ⇒ Göbekli Tepe, an archaeological site, is introduced as a UNESCO World Heritage site, the 9th site introduced in the decade **2015** ⇒ EU-Turkey summit in Brussels, discussions with Turkey's accession into the European Union and refugee crisis **2012** ⇒ Primary Education Law, known as the 4+4+4 system, passed. Four years each in primary, elementary, and high school mandatory.

Latin America

The decade was a tough one for many Latin American countries, which showed promise in the first half of the decade but lost ground in later years. The region struggled with social unrest, political uncertainties and in some cases mounting debt (as in Argentina). Nevertheless, these nations remain resilient, and have achievements to celebrate when looking back at the 2010s.

Argentine or Argentine Republic

GDP US$ 449.6 billion
GDP per capita US$ 10,006
Extreme poverty ratio 1% (2018)
Population 45 million

Argentina, with a 2019 nominal GDP of USD449.663 billion and GDP per capita USD10,006, has had a difficult decade, but has nevertheless had some positive developments in the past years. While Argentina has struggled with mounting debt, in 2018, it came to a USD50 billion, 3 year agreement with the IMF, to help get its economy back on track. Faced with a deadlock on bond repayments, Argentina sought in 2019 to restructure its 100 USD billion debt with private bondholders —an agreement would be reached by September 2020.

In 2010, a large oil deposit was found in the Vaca Muerta formation, the 2nd largest shale gas reserve, and the 4th largest shale oil reserve in the world. Since then, investment from around the world has flowed in, and Argentina has the potential to become a Latin American leader in crude oil production.

Argentina has also been hailed for expanding LGBTQ rights over the past decade, legalizing gay marriage in 2010 and expanding rights for transgender people. In 2013, Pope Francis, an Argentinian, was elected. The first Latin American leader of the Catholic Church, he has been widely hailed for his less rigid and more modern approach to religion.

The nation has developed a booming software industry—companies like mobile app designer Etermax are putting Argentina on the map and transforming cities like Buenos Aires into technology hubs that drive innovation forward. In 2014, Globant became Latin America's first software company to put its initial public offering on the New York Stock Exchange.

It has also made strides in scientific innovation, launching ARSAT-1, the first geostationary satellite built in Latin America, into orbit in 2014. Argentinian company Satellogic, founded in 2010, has developed revolutionary technology, developing satellites at lower prices, enabling the launching of more satellites to develop a more comprehensive observational system.

Argentina is home to many of Latin America's biggest startups, largely due to its knowledgeable human capital and upward innovation. Internet connectivity has risen from 45% in 2010 to 74.295% in 2017, increasing the resources available to the average citizen and driving the growth of fintech and ecommerce companies —for example, Argentinian company MercadoLibre has grown into the leading ecommerce company in Latin America.

Economic/Business	Technological	Social/Cultural/Other
2010 ⇒ Large oil reserves found in Vaca Muerta, 2nd largest shale gas reserves and 4th largest shale oil reserves in the world	**2010** ⇒ Satellogic, space company which developed revolutionary earth observation technology, is founded	**2013** ⇒ Pope Francis becomes first Latin American Pope
2014 ⇒ Globant Software company IPO on NY Stock Exchange - Latin America's first software company to do so	**2014** ⇒ ARSAT-1 launched into orbit, 1st geostationary satellite built in Latin America, by Argentinian company INVAP	**2010** ⇒ Gay marriage is legalized, first time in Latin America
		2018 ⇒ Argentina reaches 3 year USD50 billion deal with IMF

Brazil or Federative Republic of Brazil

GDP US$ 1.84 trillion
GDP per capita US$ 8,717
Extreme poverty ratio 4.4% (2017)

Population 211 million

Brazil's economy grew in leaps and bounds during the first half of the decade but went down in the second half, and instituted important reforms in recent years. It is ranked lower in terms of nominal GDP at the end of the decade, compared to the early 2010s: it was the 9th largest economy in 2019, compared to the 6th in 2012. Over the decade, Brazil's economy has increasingly become more reliant on commodities and services. Therefore, the country was hit especially hard by lower commodity prices. At the same time, corruption scandals the so-called 'Car Wash ('Lavajato') in relation with the biggest oil company in Latin America, the Brazilian Petrobras and also the construction company Odebrecht. Political turmoil also contributed to the difficulties faced by Brazil in the later years of the decade. In 2016, President Dilma Roussef was impeached, and former president Luíz Inácio Lula da Silva landed in prison.

In 2011, the government launched the "Brazil Without Poverty" plan, aiming to eliminate extreme poverty by 2014. The initiative was largely successful, in part because of the success of the Bolsa Familia poverty reduction program that was already in place, and which halved Brazil's poverty rate in a decade. Another social initiative was the affirmative action law of 2012 that reserved a certain percentage of university seats for African and indigenous descent students from state schools, an important step in a country that, despite being majority black, sends mostly white students to private schools, giving them the opportunity to attend prestigious universities. At the same time, the Gini coefficient at 53.3 in 2017 is one of the highest in the world.

In 2014, the country launched its landmark Civil Rights Framework for the Internet Act, guaranteeing privacy, net neutrality, and a host of other rights to internet users across the country. Among other reforms, in 2017 Brazil passed its first major labor reform in decades, increasing contract flexibility, making union dues voluntary, and reducing labor costs. Then, in 2019 pension reforms redesigned the social security system and implemented a retirement age in order to cut losses over Brazil's money draining pension system, reducing the country's budget deficit.

Major sporting events have brought outside investment and infrastructural development to Brazil. In 2014, it hosted the FIFA World Cup, and in 2016, the Summer Olympics in Rio de Janeiro, boosting the tourism industry and creating thousands of temporary jobs.

On the business front, one of the highlights of the decade was Petrobras' IPO in 2010, the largest ever at that time. The state oil company raised over USD70 billion. Brazil's technological startup scene has also continued to thrive in spite of economic turbulences. The only standalone online bank in the world, the Brazilian Nubank was launched in 2014. In 2018, the taxi app 99 was sold to the Chinese company Didi for USD1 billion, becoming the first unicorn in Brazil.

Chinese investments in Brazil have continued to rise, equaling those of the U.S. One of the biggest of these investments was the acquisition of the remaining stakes of the electrical company CPFL by the Chinese State Grid Corporation of China (CGCC).

Now heavily impacted by the pandemic, it is uncertain what the future holds for Brazil. FDI has been trending downward due to political and economic instability, and it is difficult to evaluate the impact of recent policies due to the effects of COVID-19—but as the ninth largest economy in the world and the biggest in Latin America, Brazil no doubt has an important role to play going forward.

Economic/Business	Technological	Social/Cultural/Other
2010 ⇒ Brazil's Petrobras sets the record for largest IPO at the time	**2014** ⇒ Civil Rights Framework for the Internet Act	**2011** ⇒ Dilma Rousseff, elected First female President
2011 ⇒ "Brazil Without Poverty" plan launched	**2014** ⇒ Nubank, the only standalone online bank in the world, is launched	**2012** ⇒ Affirmative Action Law for Universities passed
2012 ⇒ Brazil becomes the world's 6th largest economy, overtaking the United Kingdom	**2018** ⇒ Brazilian taxi app 99, the first unicorn in Brazil was sold to the Chinese Didi	**2014** ⇒ Brazil hosts FIFA World Cup
2017 ⇒ Labor Reform bill		**2016** ⇒ Rio de Janeiro Summer Olympic Games
2019 ⇒ Landmark pension reform bill passes		**2016** ⇒President Dilma Rousseff is impeached and removed from office
2020 ⇒ Brazil has 7 firms in Fortune Global 500 ranking		

Chile or Republic of Chile

GDP US$ 282.3 billion
GDP per capita US$ 14,896
Extreme poverty ratio 0.3% (2015)
Population 19 million

Chile has grown to be one of the richest countries in Latin America, with GDP USD282.318 billion and a GDP per capita of USD14,896, one of the highest in the region. While protests over income inequality have resulted in social unrest over the past few years, Chile's GINI index, a measure of income distribution, fell from 47 in 2009 to 44.4 in 2017, highlighting improvements in inequality over the decade.

In 2010, as a recognition of Chile's successful and sound economic policies, Chile was invited to join the OECD. It became the first South American country to do so, and the second Latin American country after Mexico. In 2012, Chile, along with Mexico, Peru, and Colombia, formed the Pacific Trade Alliance, a trade bloc aimed at encouraging economic integration among member nations.

Chile entered the decade, compared to many other emerging market countries, with high education enrollment levels. Due to successful education reform, Chile saw further substantial improvements with regards to its population attending secondary and tertiary academic institutions: Chile's secondary gross enrollment rate grew from 90.0 in 2010 to 102.4 in 2018, and its tertiary gross enrollment rate from 67.9 in 2010 to 90.9 in 2018.

The Chilean government has also made efforts to increase entrepreneurship, and their efforts have paid off—Santiago has earned the nickname "Chilecon Valley," in large part due to Start-Up Chile, a startup accelerator launched by the government in 2010 with a valuation of USD1.4 billion. It has launched over 1600 companies and draws startups from over 85 countries. It is one of the biggest accelerators in Latin America, attracting international interest.

Technological and scientific innovation has also risen, as illustrated by a few vivid examples. One is the ALMA Radio Telescope Array in Chile's Atacama Desert, completed at the turn of the decade. The massive system played a defining role in obtaining the first ever "image" of a black hole in 2017. In Santiago, the government has embraced electric buses, making public transportation cleaner, greener and more cost-effective. Internet penetration augmented significantly over the decade: 57.5% more Chilean households had internet access in 2017 than in 2009, boosting technological development and innovation.

An interesting example of Chile's technological innovation has been their response to earthquakes. Amazingly, as a country that lies upon the infamous "Ring of Fire," Chile experienced no more than 15 deaths in its 8.3 and 8.4 magnitude earthquakes that occurred in 2014 and 2015, respectively. After an 8.8 magnitude earthquake caused 525 fatalities in 2010, the government embarked on ambitious education, technological, and architectural reforms during the decade—including educating the public on earthquake preparedness, improving technological standards to detect earthquakes and tsunamis in advance, and ensuring that buildings are more prepared to withstand earthquakes. So far, these reforms have been successful in mitigating damage caused by earthquakes.

On the social front, Chile banned discrimination based on sexual orientation in 2012 and the country's total ban on abortions overturned in 2017.

Economic/Business	Technological	Social/Cultural/Other
2010 ⇒ Chile joins OECD as first South American country	**2011** ⇒ ALMA Radio Telescope Array, largest in the world, begins observations	**2012** ⇒ Discrimination on the basis of sexual orientation is banned
2010 ⇒ Start-Up Chile launched by government	**2017** ⇒ Chile's ALMA Radio Telescope Array plays crucial role in obtaining the first "image" of a black hole	**2017** ⇒ Ban on abortions overturned
2011 ⇒ Forms Pacific Trade Alliance with Mexico, Peru, Colombia		

Colombia or Republic of Colombia

GDP US$ 323.8 billion
GDP per capita US$ 6,432
Extreme poverty ratio 4.1% (2018)
Population 50 million

The past ten years in Colombia have been a period of emerging peace, infrastructural development, and increasing globalization as the rest of the world took notice of what the nation has to offer. Colombia's GDP is USD323.803 billion, and GDP per capita is USD6,432.

At the turn of the decade, in 2011, Colombia signed a free trade agreement with the United States, its biggest trade partner, to eliminate tariffs and facilitate trade between the two countries. This was an important step considering that the U.S. accounts for more than 27% of Colombia's exports. The same year, Colombia joined the Pacific Alliance trade organization with Mexico, Peru, and Chile.

In 2014, the government announced its 4G road program, with the goal of building 5,892km of roads within eight years, facilitating transportation and development across the country. Sponsors of the project come from across the globe, including Goldman Sachs bank, highlighting the increase in investment in Colombian infrastructure from around the world. While the project has experienced delays, it is currently on track to be completed by 2024. There has also been a developmental boom in Colombia's Atlantic coast, where modernization of ports, and the building of new airports and bridges are quickly transforming it from a danger zone to a thriving region, ripe for investment and tourism.

In 2016, Colombia closed a historic peace deal with the FARC militant group, ending half a century of armed conflict in the region. President Juan Manuel Santos was awarded the Nobel Peace Prize for his part in the negotiation. Since then, the number of people displaced by violence has steeply declined, falling for the first time in the decade, from 7,246,000 to 5,576,000. The reduction in violence has also brought a surge of tourism into the country, driving tourist numbers up 20% between 2016 and 2018, and opening up jobs in the growing industry.

The past years have also witnessed a rise in entrepreneurship, with Colombia rising high in the rankings for the number of fastest growing Latin American companies. This is in part because of the government's active efforts to reduce complex and frustrating paperwork to allow innovation through its "Agile Colombia" platform, which collects feedback on government processes from the public. Many Colombian startups are also receiving international funding. For example, the online learning platform Platzi became the first Latin American company to join Silicon Valley startup accelerator Y Combinator in 2015. And in 2018, Rappi, a Colombian delivery startup, became the second Latin American company to reach unicorn status with a valuation of USD1 billion.

Colombia has also seen an increase in exposure on the world stage. The country has won awards at several major sporting events, such as the victory of Colombian citizen Egan Bernal at the 2019 Tour de France, the first Latin American winner of the famed race. And in 2016, "El abrazo de la serpiente," or "Embrace of the Serpent," became the first Colombian movie nominated at the Academy Awards, a nominee for best foreign language film.

Economic/Business	Technological	Social/Cultural/Other
2011 ⇒ U.S./Colombia Free Trade Agreement takes effect **2011** ⇒ Pacific Alliance trade organization created by Colombia, Mexico, Peru, and Chile **2014** ⇒ USD25 billion 4G road program announced **2020** ⇒ Colombia becomes 37th country in the OECD, 3rd Latin American country in the organization	**2015** ⇒ Platzi Online Education company becomes first Latin American company to get into the prestigious Silicon Valley startup incubator, Y Combinator **2018** ⇒ Rappi on-demand delivery startup reaches unicorn status, the 2nd Latin American company to do so	**2015** ⇒ Education budget surpasses defense budget for first time **2016** ⇒ "El abrazo de la serpiente," or "Embrace of the Serpent," becomes the first Colombian movie nominated at the Academy Awards **2016** ⇒ Gay marriage legalized **2016** ⇒ Peace deal with Farc after decades of fighting, Farc transformed into a political party **2016** ⇒ Nobel Peace Prize awarded to President Juan Manuel Santos **2019** ⇒ Colombian, Egan Bernal, wins Tour de France, becoming first Latin American winner

Mexico or United Mexican States

GDP US$ 1.26 trillion
GDP per capita US$ 9,863
Extreme poverty ratio 1.7% (2018)
Population 128 million

With a GDP of USD1.258 trillion, Mexico is ranked as the 15th largest economy in the world and second in Latin America. Over the last decade, the country's economy, while facing falling growth rates, has made large strides in terms of technology, trade, and cultural exports, and in 2019 again became the biggest trade partner of the U.S.

Mexico's booming fintech industry is one of the most developed in Latin America, ahead of Brazil, and in 2018, the country became the first Latin American nation to pass fintech regulations. This is not only extremely important to the economy's digitalization, but also in decreasing corruption. With more than 400 Fintech startups, the Mexican Fintech ecosystem is the most important in Latin America with 18% growth in the last year. Kueski and Bitso are among the biggest ones by number of customers, and the sector at large has attracted investments from Softbank or Goldman Sachs.

In 2013, the Mexican government launched INADEM, a government initiative to boost entrepreneurship. Additionally, since 2014, the government has handed out millions to support innovation, efforts which have paid off, as many Mexican cities, like Guadalajara, have become tech hubs, home to unicorns and funded by successful startup accelerators. In 2018, Mexico launched the Bolsa Institucional de Valores, or BIVA stock exchange, providing competition to the Mexican Stock Exchange for the first time in decades. The new exchange helped bolster investment, increase competition, and boost economic growth.

Despite border conflict with the United States and the dissolving of NAFTA, Mexico, the U.S, and Canada agreed to form the USMCA trade agreement in 2018, securing Mexico's place as the United States' key trade partner. Additionally, the 2014 Energy Reforms were aimed at boosting the energy sector by breaking the monopoly held by state owned oil companies. The act was successful in drawing private investment in the oil sector, and bolstering Mexico's oil industry. Mexico has also made strides in renewable energy, opening Latin America's largest solar power plant in Coahuila and largest wind generation plant in Tamaulipas in 2019.

Finally, the country has bolstered its cultural exports over the decade. In 2018, *The Shape of Water*, by Mexican director Guillermo del Toro, won best picture at the Academy Awards, and Mexican films and directors have consistently been nominated for the highest honors. Mexican ballerina Elisa Carrillo won the prestigious *Benois de la Danse* award in 2019.

In November 2019, due to the U.S./China trade sanctions, Mexico became the biggest trade partner of the U.S., overtaking China and recovering the position it previously held before 2003.

Mexico has been heavily impacted by the COVID-19 pandemic, so it is uncertain whether its economy will be able to rebound going into the next decade. However, technological growth and anti-corruption reforms have been instrumental in bringing the country to the next stage of its development.

Economic/Business	Technological	Social/Cultural/Other
2014 ⇒ Energy sector reforms	**2018** ⇒ Mexico becomes first Latin American company to pass laws regulating fintech	**2018** ⇒ Mexican director wins best picture at the Oscars
2013 ⇒ INADEM, government initiative to boost entrepreneurship	**2019** ⇒ Mexico has largest wind generation plant and largest solar generation plant in Latin America	**2019** ⇒ Elisa Carrillo wins the prestigious *Benois de la Danse*
2018 ⇒ Trade agreement US-Mexico-Canada (USMCA) signed		
2018 ⇒ BIVA stock exchange launched		
2019 ⇒ Becomes #1 trade partner for the U.S.		
2020 ⇒ Mexico has 4 firms in the Fortune Global 500 ranking		

Africa

African nations have witnessed their fair share of triumphs and struggles over the past ten years. Some, like Egypt, have had significant changes in the balance of power. In 2013, Nigeria became the biggest economy in Africa, while South Africa has st ruggled. All countries have seen increasing digitalization, with Nigeria's Jumia, an ecommerce company, leading the way. And the creation of the African Free Trade Agreement bodes well for the continent as a whole.

Egypt or Arab Republic of Egypt

GDP US$ 303.2 billion
GDP per capita US$ 3,020
Extreme poverty ratio 3.2% (2017)
Population 100 million

Since the Egyptian 'Green Arab' revolution in 2011, Egypt has struggled with economic instability, geopolitical instability, and rising poverty rates, averaging 2.8% annual GDP growth in the first half of the decade. However, there are still positives in its development over a decade that has fundamentally changed the country, and it has recovered some growth, averaging 4.8% annual growth in the latter half.

In 2016, the nation entered into a USD12 billion deal with the IMF to institute economic reforms, including implementing a flexible exchange rate and raising interest rates. The economic reform program has succeeded in drawing higher levels of foreign investment into the country and reducing inflation, with the inflation rate reaching its lowest point in nine years in 2019. Foreign direct investment inflow has grown consistently after an initial decrease during the revolution, reaching USD9 billion by 2019, with a 41% increase since 2010. GDP growth has remained steady despite setbacks, with an increase of 5.558% in 2019. With this increase in stability, domestic terrorism has come under more control, and Egypt has benefitted from tourism picking up, and an increase in expats returning from overseas.

The last ten years have also been a time of entrepreneurship and technological development. Successful new startups like Diwan Videos, a multi-channel network founded in 2010 that grew to be one of the biggest in the Middle East, and Swvl, a transportation/technology company that has expanded beyond Egypt, have attracted investment from around the world. Internet connectivity has also doubled, with 46.9% of the population using the internet in 2018 compared to 21.6% in 2010. Additiona lly,

Egypt's young population (half the country's population is under 25) is driving the digital economy, employed by online delivery or rideshare apps like Careem, which was recently acquired by Uber.

In 2018, the African Free Trade Agreement was signed, a crucial step for the continent. While it is still early to gage the full impact of the agreement, it is expected to benefit Egypt, as one of the largest economies in Africa. It remains to be seen whether the nation will achieve the goals outlined in its Vision 2030 plan, which aims to improve standard of living and promote social inclusion, amongst other objectives.

Economic/Business	Technological	Social/Cultural/Other
2015 ⇒ "New Administrative Capital" plans revealed to ease congestion in Cairo	**2010** ⇒ Diwan Videos, multi-channel network founded	**2011** ⇒ Egyptian Revolution, President Mubarak resigns
2016 ⇒ Economic reform program funded by IMF, USD12 billion in loans	**2017** ⇒ Swvl startup formed	**2012** ⇒ First "free" elections held after revolution
2016 ⇒ Egypt 2030 Vision agenda launched		**2013** ⇒ Coup, Mohamed Morsi and the Muslim Brotherhood are removed from power
2018 ⇒ African Free Trade Agreement		
2019 ⇒ Inflation rate hits lowest point in nine years		**2014** ⇒ Political parties based on religion are banned

Nigeria or Federal Republic of Nigeria

GDP US$ 448.1 billion
GDP per capita US$ 2,230
Extreme poverty ratio 39.1% (2018)
Population 201 million

Nigeria, with a GDP of USD448.12 billion, recently surpassed South Africa as Africa's largest economy, but its GDP per capita is still extremely low, at USD 2,233, a third of South Africa's. While the country has struggled with illiteracy, insurgency, and an economy overly dependent on oil—approximately 10% of the country's GDP comes from its oil and gas industries, with 86% of its export revenue solely from petroleum exports—it has made some strides in economic diversification, increasing its output in technology and the creative sector. Additionally, the country produces some of the most successful African startups, has become more self-reliant in the agricultural sector, and has invested in infrastructural development.

Nigeria's growing film industry Nollywood is one of the most productive in the world, producing over 50 films a week. Its music industry is also growing fast, gaining widespread popularity overseas and becoming a fixture in the nation's exports.

Although Nigeria has a huge capacity for agriculture, much of its arable land is not utilized, making it dependent on imports of staple foods such as rice from other countries. To address this issue, in 2011, the government launched its Agricultural Transformation Agenda with the goal of making the country more self-sufficient and reducing imports of food from other countries. Since 2010, the country's rice paddy production has increased from about 4.5 million tons to 6.8 million tons, and global investment in its agricultural sector has grown, reaching a six year high in 2020.

The Nigerian government has also placed emphasis on infrastructural development over the past years. The Lagos-Kano rail, a railway under construction that will connect much of Nigeria, shows promise as a project that will facilitate the transport of cargo and create jobs. The country has also branched out into solar energy, allocating USD75 million to provide stable, clean power to thousands of citizens.

Nigeria's technological sector has also seen development, with Lagos' Yaba district becoming the new center for technological innovation. Many of Nigeria's most successful startups originated in Lagos, such as ecommerce company Jumia and remote engineering company Andela. Venture capital and international investment have increased as Nigerian companies begin to attract international attention—Andela, a company that sources and trains software engineers, was partly funded by the Chan Zuckerberg

Initiative, and Nigeria continues to send several of its startups to Silicon Valley's Y Combinator startup accelerator. Fin tech has also boomed, with companies like Paystack facilitating online payments, adding to the already powerful financial sector of the cou ntry.

After the 2016 recession, the Nigerian government launched its 2017-2020 Economic Recovery & Growth Plan, which aimed to diversify the economy and provide power security under the Power Sector Recovery Program by increasing access to electrici ty across the country. The Chinese government has also been investing in Nigerian infrastructural development as part of its USD60 billion investment in Africa that was announced in 2018.

Nigeria has also seen a positive trend in literacy, as the literacy rate amongst people aged 15+ has increased by over 10% according to the World Bank, and new, innovative methods are being used to improve education.

However, with poor health infrastructure and almost 40% of the Nigerian population in extreme poverty, the COVID crisis is hitting hard in Nigeria, which has already been affected by the lower oil prices of the decade.

Economic/Business	Technological	Social/Cultural/Other
2011 ⇒ Agricultural Transformation Agenda launched	**2011** ⇒ Nigeria's first startup incubator, Cc-HUB opened in Yaba	**2010-2020** ⇒ 10%+ growth in literacy, according to World Bank
2013 ⇒ Nigeria pushes past South Africa as Africa's largest economy for the first time	**2012** ⇒ Jumia, e-commerce company, founded	
2017 ⇒ Economic Recovery & Growth Plan launched		
2018 ⇒ Nigeria once again overtakes South Africa as the continent's biggest economy		
2019 ⇒ Nigeria joins African Free Trade Agreement		

South Africa or Republic of South Africa

GDP US$ 351.4 billion
GDP per capita US$ 6,001
Extreme poverty ratio 18.9% (2014)
Population 59 million

South Africa, with a GDP of USD351.432 billion and a GDP per capita of USD6,001, is the most industrialized economy in Africa, as well as the second wealthiest to Nigeria as of 2020. However, the economy has suffered over the past years —over 300 billion rand of the GDP is accounted for by mining, yet mining employment has fallen 10%, and the industry has steeply declined.

Even as the country battles extreme income inequality and racial inequalities, it celebrated the life of Nelson Mandela following the father of the nation's death in 2013, highlighting the progress made since the ending of Apartheid.

South Africa has increasingly become an important global player, as one of the most promising African economies with a booming startup culture. Fin tech companies are amongst some of the most successful startups in the nation, including Yoco, a card machine maker with a focus on small businesses, and Slide, an app that allows users to transfer money to each other. A number of new digital banks have emerged in South Africa's financial sector, such as Discovery Bank and TymeBank. The government is also actively trying to incubate a startup culture of innovation and growth, through initiatives like its Small Business Incubatio n program.

The past decade has brought an increase in technological development and internet access across South Africa. In 2013, the nation launched the Smart ID card system, allowing it to, more effectively, identify citizens, prevent fraud, and curtail identity theft. This year marked the introduction of 5G connection in the country, a project that is still unfolding in the midst of the COVID-19 crisis.

Infrastructural development has also been key, with trade partner China agreeing to invest USD14.7 billion in projects in South Africa. Additionally, the government recently announced that independent power suppliers would be allowed to operate. The

move takes control of the country's power supply away from the state-owned Eskom and promises to be beneficial to a nation racked by extreme power cuts.

While the South African economy has shown little growth recently, the nation has kept inflation at bay consistently over the past two years, a positive sign despite its other struggles. However, with a significantly underdeveloped health infrastructure and a significant share of the population living in extreme poverty, the country has been significantly impacted by the COVID crisis.

Economic/Business	Technological	Social/Cultural/Other
2012 ⇒ Infrastructure Investment Program approved **2018** ⇒ China pledges USD14.7 billion investment in South Africa, including infrastructure projects **2019** ⇒ Government announces small business incubation program	**2013** ⇒ Smart ID system launched **2015** ⇒ Yoco, digital payment company, founded **2017** ⇒ the Slide app, a "South African Venmo" is launched	**2010** ⇒ Hosts 19th FIFA World Cup, first time in Africa **2013** ⇒ Nelson Mandela, first democratically elected President, passes away **2019** ⇒ South Africa wins Rugby World Cup for 3rd time

Eastern Europe

Poland and Russia, the two European nations represented in the E20, are also two of the most developed nations in the list. Both have held numerous scientific and technological achievements, though Russia has struggled with slow growth, while Poland has posted high growth rates over the recent years.

Poland or Republic of Poland

GDP US$ 592.1 billion
GDP per capita US$ 15,595
Extreme poverty ratio 0.3% (2011)
Population 38 million

Over the past decade, Poland has shown significant growth, maintaining a steady 3% GDP growth between 2010-2014, 4.3% between 2014-2020, and passing the USD15,000 GDP per capita mark in 2018. Poland has been one of the fastest growing economies of the European Union. Rising household consumption fueled by increases in budgetary expenditures, rising wages, a large domestic market, vibrant entrepreneurial sector, as well as low interest rates and the execution of E.U. funded investments and programs, have all contributed to Poland's economic growth over the last decade.

Technological development and a booming startup center in Warsaw have established the nation as an important player in the European Union and the world economy. Recently, it ranked amongst the top European countries for FDI inflow, with 306 greenfield projects announced in 2020.

Of particular note in the tech scene is the video game industry. CD Projekt, the Polish developer of the popular game *The Witcher*, is the most valuable game company in Europe as of 2020, worth over USD8 billion. Poland's rapid digitalization and high internet penetration—77.5% as of 2018—have led to an ecosystem where technological innovation thrives.

Poland's accomplishments include launching its first nano satellite into space in 2012—Lem, under the auspice of the Polish, Canadian, and Austrian project titled Bright Target Explorer (BRITE). And in 2018, Polish writer, Olga Tokarczurk, won the Nobel Prize in literature for her work.

In the next decade, Poland will have to fight the economic impacts of the pandemic, as well as the negative consequences of population decline. But while COVID-19 has had a negative impact on the Polish economy, the country has a history of overcoming

worldwide economic downturns, as it was one of the only European economies that emerged relatively uns cathed from the 2009 recession.

Economic/Business	Technological	Social/Cultural/Other
2018 ⇒ Poland passes USD15000 GDP per capita **2020** ⇒ Poland has 1 firm in Fortune Global 500 ranking	**2013** ⇒ Lem (BRITE Project), first Polish satellite launched into space	**2018** ⇒ Polish writer Olga Tokarczurk wins Nobel Prize in Literature

Russia or Russian Federation

GDP US$ 1.7 trillion
GDP per capita US$ 11,585
Extreme poverty ratio 0% (2018)
Population 144 million

With a GDP of USD1.7 trillion, Russia is the world's 11th largest economy, dependent largely on oil and other natural resources, which account for as much as 60% of the country's GDP. The early years of the decade were marked by the integratio n of Russia into the WTO: it joined in 2012, after years of negotiations.

During the 2010s, Russia struggled to combat a steady population decline, as well as U.S. and EU sanctions, and the challenges of slow growth and diversification away from natural resources. Its growth rate fell during the last half of the decade to less than 1% on average, compared to 3% during the first half of the 2010s.

Russia suffered in the 2014 oil crash, with the Russian ruble steeply devalued because of the sanctions imposed by world powers after Russia's annexation of Crimea, and interventions of the Russian Bank failing to bolster the currency. Furthermore, the European Central Bank stopped operations in Russia due to growing pressure from the international community to condemn the annexation. In 2014, Russia formed the Eurasian Economic Union, along with Belarus and Kazakhstan, in an effort to consolidate economic power in Eastern Europe.

Despite setbacks, Russia has continued to be a global leader in scientific achievement and higher education. In 2016, Bloomberg ranked Russian higher education as the 3rd best in the world, and the International Literacy Study ranked Russia as having the highest 4th grade reading achievement in the world. Russia ranks high in education equity, with the effects of socioeconomic gap on students' education levels amongst the lowest in Europe.

Russian continued research achievement over the past years is reflected in the nation consistently featuring amongst the top in its number of patent filings. Much of this is due to the government's targeted approach to technological development in the early part of the decade—the Russian IT industry is said to have been kickstarted by then Russian president, Dmitry Medvedev's visit to Silicon Valley in 2010, after which the government turned its focus towards creating a more technologically driven economy. And in 2011, Yandex, Russia's leading search engine, had its initial public offering on the market, a hugely successful IPO that rai sed USD1.3 billion. More recently, the government announced it would be implementing major tax cuts for IT companies, in an effort to further boost the IT industry and further diversify Russia's economy. Internet penetration has almost doubled over the decade, from 43% in 2010 to 80.9% in 2018.

Russia successfully hosted the FIFA World Cup in 2018. The event resulted in a surge of tourism, development of infrastructure and transportation, and an opportunity for Russia to present itself to the world in a positive light.

In 2016, the government approved a law that would grant free land to anyone willing to move to the Far East region of the country, in an effort to populate the area and take advantage of the resources in the region. In 2018, the Russian government announced its controversial pension reform plan, drastically increasing the retirement age from 55 to 60 for women, and 60 to 65 for men, in an attempt to combat a shrinking workforce.

Finally, Russia has made tremendous strides in eliminating poverty, with the extreme poverty ratio down to 0% in 2018, and the poverty ratio almost halved, reduced from 4.0 in 2010 to 2.3 in 2018. The Russian government has announced further goals to reduce poverty by half by 2024.

As all economies, Russia's growth prospects have been impacted by the COVID crisis, but the economic forecast at -4% of GDP is less severe than initially anticipated, and the advances in vaccine development have improved the economic prospects of the country.

Economic/Business	Technological	Social/Cultural/Other
2012 ⇒ Russia joins the World Trade Organization	**2011** ⇒ Nord Stream, the longest offshore pipeline, built	**2010** ⇒ Decline in population reverses
2014 ⇒ Formation of Eurasian Economic Union by Russia, Kazakhstan, and Belarus	**2011** ⇒ Spektr-R Space based radio telescope with the highest angular resolution (RadioAstron project), launched into orbit	**2014** ⇒ Winter Olympic Games held in Sochi, Russia
2016 ⇒ Law allowing people moving to Far East to receive free land goes into effect		**2014** ⇒ Russia's invitation to G7 rescinded due to annexation of Crimea
2018 ⇒ Pension reform		**2016** ⇒ Ranked 3rd best in the world higher education by Bloomberg
2020 ⇒ Russia has 4 firms in Fortune Global 500 ranking		**2016** ⇒ Russian 4th grade ranked as having highest reading achievement in world by International Literacy Study
		2018 ⇒ FIFA World Cup

Methodology

Though setbacks, controversies, and complications often fill the news, this exercise highlighted the positive developments rather than the negative ones, in a decade of significant growth for so many emerging markets. Summarizing nations' entire economic, business and technology progress and developments would be impossible and trying to do so in such a condensed format would be a discredit to their progress. Rather, through data compilation from the World Bank, research databases, and news articles (international & local); interviews with citizens of each country; and discussions with the EMI team, we aimed at pinpointing some of the most significant milestones. These milestones, though by no means comprehensive, laid the groundwork of each nation's developments over the last decade through an objective, apolitical lens as much as possible.

If not specifically stated otherwise, all statistics regarding GDP, GDP per capita, extreme poverty ratio, and population refer to the year 2019, published in 2020 by the World Bank, and all monetary statistics are in USD. Extreme poverty ratio refers to the percentage of the population living at USD1.90 a day, while poverty ratio refers to the percentage of population living at USD5.50 a day.

The countries listed here are those which are currently or have been part of the E20 (Casanova and Miroux 2016, 2017, 2018, 2019)—the group of emerging markets with the largest nominal GDP and regional influence—in the last decade.

Sources

Authors' development using data from ABC News, Al Jazeera, Alliance for Bangladesh Workers Safety, Baker Mckenzie, Bangladeshi Government, Bangkok Post, BBC, Billboard.com, blog.ycombinator.com, Bloomberg, BPJS Kesehatan, Brazilian Government, Britannica, Brookings Institute, Business Today, CB Insights, Center for Strategic and International Studies, Central Intelligence Agency, CMS Law, CNBC, CNN, The Daily Star, Dhaka Tribune, The Economic Times, The Economist, The European Union, The FAO, FDI Markets, Financial Express, The Financial Times, Financial Tribune, Finextra, Forbes, Fortune, gojek.com, The Guardian, Hacettepe University in Turkey, The Hindu, The IMF, The Independent, The Jakarta Post, knoema.com, koc.com, Malaysian

Government, McKinsey, Mexico News Daily, Middle East Monitor, The Moscow Times, The Nation Thailand, The New York Times, Nigerian Government, Nobel Prize, OECD, OPEC, Philippine Government, pi STRATEGY, Polish Investment and Trade Agency, PowerTechnology, Radio Free Europe/Radio Liberty, Reuters, Royal Thai Embassy, Science Direct, SCImago Journal, SJR, Statista, The Straits Times, Thai Government, Trading Economics, uncubed.com, UNESCO, United Nations, ustr.gov, videogameschronicle.com, The Wall Street Journal, The Washington Post, World Bank, World Food Prize, World Health Organization, & World Intellectual Property Organization, all accessed June-December 2020.

Special thanks to George Abonyi, Ram Akers, Mohammed AlAmer, Danara Buvaeva, Timothy Heyman, Pial Islam, Nnamdi Iwuji, Gautam Jai, Kalman Kalotay, Klaudia Kokoszka, Nauman Lakhani, Miska Lewis, Tamia Lewis, Felix Lukman, Tansuğ Ok, Jun Park, & Nicola de Vera for their insightful contributions to the E20 milestones.

PART II
SPECIAL CONTRIBUTIONS

EMERGING MARKETS RESEARCH NETWORK
Paris, France

MOMINA AIJAZUDDIN
Washington, United States

JAMES ZHAN, ISYA KRESNADI
Geneva, Switzerland

LIMIN CHEN, ZHI QIAO
Wuhan, China

VENETA ANDONOVA, JUANA GARCÍA, ANDRÉS GUERRERO ALVARADO
Bogota, Colombia

ANABELLA DÁVILA
Monterrey, Mexico

MANISHA BARNWAL, GAUTAM JAIN
Ithaca, United States

Editors:
Lourdes Casanova - Gail and Rob Cañizares Director, Cornell University (Ithaca, United States)
Anne Miroux - Faculty Fellow, Cornell University (Ithaca, United States)

Chapter 5
New Technologies as a Lever for Recovery in Emerging Markets

EMnet - OECD Development Center, Paris, France

Executive Summary

The 21st century has witnessed a rapid increase in the uptake of digital technologies by economies, societies and businesses across the globe. However, not all social groups have equally benefitted from it, particularly in emerging markets. Indeed, although the diffusion and adoption of mobile broadband has significantly increased across the board, many people still cannot use more sophisticated mobile Internet applications, for example for online purchases or banking (OECD, 2017; GSMA, 2019a).

In the current COVID-19 context, the importance of these technologies has only increased. The global recession triggered by the pandemic has exacerbated poverty and vulnerabilities in developing and emerging economies. The digital transformation can help countries out of the crisis, by stimulating business innovation and new consumption models, transforming production systems and value chains, re-organising economic sectors, and introducing new conditions of competitiveness. Digital tools can also support better access to services, including health and education, and help improve public governance (OECD et al., 2020).

This article explores how the private sector can contribute to accelerating the digital transformation and unlock economic development across emerging markets. Three specific cases are presented on digital production transformation in Africa, smart cities in Asia, and investment in new technologies in Latin America. These were the topics of recent business meetings organised by the OECD Development Centre's business platform Emerging Markets Network (EMnet).

5.1. New technologies in support of productive transformation in Africa

In Africa, improving digital connectivity and infrastructure will be critical to the continent's productive transformation. Africa's GDP has grown with the second fastest rate in the world since the 2000s at 4.6% annually. Africa's domestic demand accounts for 69% of this growth performance and has shifted towards more processed goods. Digitalisation can enhance the industrial performance of companies, the diversification of the economy, as well as stimulate the improvement of business climate, governance, transport systems and communication. Improving digital connectivity and integration is also important to enhancing firms' abilities to expand and thrive in new markets (AUC/OECD, 2019).

The current COVID-19 crisis will likely reshape global value chains, bringing challenges but also opportunities for Africa. Official data show that African producers only source 12.9% of their inputs from within the region, compared with 21.6% in Southeast Asia[32]

[32] Southeast Asia refers to the ten member countries of the Association of Southeast Asian Nations (ASEAN): Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam.

(AUC/OECD, 2019). Strengthening continental value chains should be a priority given the uncertain global business context, with some multinational enterprises from OECD countries re-examining their supply chain models, possibly moving towards shorter chains and near-shoring approaches. Above all, as the private sector advances its digital transition, it is important for the continent to invest in enhancing essential telecommunication infrastructure, including fibre optics and high-speed Internet, as well as to complete the regulatory (e-commerce) agenda for digital transition. In the medium-long term, the effective implementation of the Regional Economic Communities and the African Continental Free Trade Area (AfCFTA) will be key to strengthen regional production networks and trade, and reduce the continent's vulnerability to external shocks (OECD, 2020).

The good news is that firms participating in the EMnet meetings see the potential for digital technologies in Africa. In 2018, mobile technologies and services generated 8.6% of GDP in Sub-Saharan Africa, a contribution that amounted to over USD 144 billion of economic value added. This is expected to rise to 9.1% of the GDP by 2023. The mobile ecosystem also supported almost 3.5 million jobs (both directly and indirectly) and contributed with USD 15.6 billion in taxes (GSMA, 2019a). In 2018, there were 456 million unique mobile subscribers in Sub-Saharan Africa. It is estimated that half of the region's population – around 600 million – will subscribe to mobile services by 2025. Nigeria and Ethiopia are expected to record the fastest growth rates between 2018 and 2025, at 19% and 11% respectively (GSMA, 2019a). A 10% increase in mobile broadband penetration can increase GDP per capita by as much as 0.7% (IFC, 2019).

A. Public policies play an important role to support the development of the digital economy

EMnet meeting participants agreed that mobile phone based technology has the potential to offer immediate results in terms of digital inclusion as well as the provision of mobile services platforms. The digital revolution has pushed the mobile phone penetration rate to 96% at the continental level, although broadband still needs to be expanded. Digital transformation is opening up new and larger markets across the continent via e commerce platforms such as Nigeria based Jumia of Kenya's M Kopa, a solar energy company and possible next unicorn. New logistics and payment services such as M Pesa or Orange Mobile Money are paving the way for the growth of e commerce.

Governments can play an important role in designing policies that can support the development of the digital economy. In particular, firms highlighted that governments need to: i) invest in connectivity; ii) invest in human capital; and iii) design new legislation and regulations around cyber security, online payments, data protection, servers, privacy, and so on.

To this end, African governments will be able to address low Internet use (only 23% of the population in Sub Saharan Africa has mobile Internet access) and low broadband penetration in the majority of African countries (GSMA, 2019a). Other notable efforts include the creation of regional ecosystems that combine mobile money systems, connectivity and innovation. For example, the member states of the West African Economic Monetary Union (WAEMU) are building an interoperable system that will connect 110 million people to more than 125 banks, dozens of e money issuers, and more than 600 microfinance institutions (GSMA, 2019a).

The introduction of digital government services, such as e government, can deliver more efficient and higher quality public services. The South African e procurement system, for example, allows open and transparent bidding on government tenders, and the e filing initiative facilitates the electronic submission of tax returns and payments by taxpayers and tax practitioners (Mutula and Mostert, 2010). Moreover, compliance costs decreased by 22.4% after the South Africa Revenue Service introduced e filing. Rwanda and Kenya introduced mobile payment of taxes through their M Service platforms in 2013 and 2014 respectively (AUC/OECD, 2019).

B. Regional integration and digital transformation

Regional integration, and particularly the AfCFTA, can have a strong and positive effect on the future of production in Africa. Opportunities abound for firms seeking to access national markets and beyond, but much needs to be done by governments to provide sound regulation, quality infrastructure and a skilled workforce that will reduce costs for firms, facilitate trade expansion and attract investments.

Firms identified some key regional public initiatives that can be supported by public and private investments in new technologies: enacting model laws on telecoms, ICT and cybersecurity, introducing a regulatory framework for cross border interconnections, attracting more foreign investors in ICT infrastructure and security and creating regional Internet exchange points.

C. African skilled labour force is essential to support the digital transformation

Africa's digital transformation is also generating a new demand of skills that is not fully met by the labour market. For example, 41% of all firms in Tanzania, 30% in Kenya, 9% in South Africa, and 6% in Nigeria, have identified inadequately skilled workforces as a major constraint to their productivity. Similarly, a lack of proficiency in digital skills remains a major hindrance for employers (AUC/OECD, 2019).

Attempts to put in place policies enhancing ICT skills have already been made in African countries such as Botswana, Rwanda, Uganda and Zambia (Banga and Te Velde, 2018). Digitalisation has opened up the possibility to provide high quality training on a large scale. In rural Niger, mobile phone based training within the Alphabétisation de Base par Cellulaire project (Cellular Basic Literacy project) increased adults' writing and mathematics test scores by 20 25%, higher than the standard adult literacy and numeracy programme. Similar efforts can progressively reverse Africa's low score on the Global Talent Competitiveness Index and enable African firms to grow, attract and retain talent; countries such as Ghana, Kenya, Rwanda and Senegal have made significant strides toward this objective (INSEAD, 2019).

D. Basic infrastructure provision can unlock further investments

To meet the needs of Africa's growing population and domestic demands across sectors and industries, companies agree that more investment in infrastructure is needed, particularly in transportation, energy, and digital connectivity. The African Union Commission highlights how bridging the infrastructure gap can also be an economic opportunity for the private sector, if policy makers and companies work together on a common platform (AU, 2019). The current infrastructure gap is estimated at 3.1 -6.9% of GDP per year, and covers the investment needed for maintenance and replacement costs as well as for new infrastructure construction. Gaps exist across sectors, and include digital infrastructure. For example, while the Internet can play an important role in promoting skills, entrepreneurship and SME development, only 15% of African households have Internet access, compared to two thirds in Central Asia.

Firms agree that constraints to more investment in infrastructure development include a lack of well-structured and bankable investment projects, underdeveloped financial markets and persistent regulatory barriers. Unlocking further private sector investments in infrastructure requires addressing these constraints, for example by lowering perceived investment risk, reducing market fragmentation and information asymmetries and improving access to long-term financing. They also highlight the importance of improving the enabling policy environment, including transparency and the local capacity to deal with these complex projects (Ashiagbor et al, 2018; AUC/OECD, 2019).

E. Africa's digital economy remains fragmented and expensive

Companies indicate that Africa's digital economy remains fragmented and expensive, particularly due to coverage gap and high costs of broadband Internet and roaming. While 35% of people in Sub-Saharan Africa did not have mobile Internet access in 2018, another 41% lived within the footprint of a network, but could not access mobile Internet services because of affordability issues, lack of digital literacy, and sometimes a lack of content in local languages (Richard, 2019). According to the Alliance for Affordable Internet, the average costs for 1 GB of data in Africa is 7.12% of the average monthly salary, subjecting citizens to the least affordable Internet prices in the world (A4AI, 2019). High tariffs, low broadband penetration and slow Internet speed directly constrain the growth of the ICT industry (AUC/OECD, 2019).

Digital and ICT companies find that inadequate regulatory frameworks and a lack of competition from global actors are often major constraints for the growth of the digital economy in Africa. Proposed policy actions for countries in the region include reforms to increase investments in mobile and fixed broadband infrastructure, strengthening competition among Internet service providers, and improving the quality/price ratio for ICT services (AUC/OECD, 2019).

5.2. Smart cities as engines for growth in Asia

In Asia, smart city[33] initiatives are driven by rapid urbanisation, which is creating opportunities for economic and social development but also negative externalities such as traffic congestion or air pollution. As elsewhere around the world, new

[33] Smart cities can be defined as "initiatives or approaches that effectively leverage digitalisation to boost citizen well-being and deliver more efficient, sustainable and inclusive urban services and environments as part of a collaborative, multi-stakeholder process" (OECD, 2019a).

technologies are offering tools to increase efficiencies in urban transportation as well as a range of other services (OECD, 2019b). Smart cities can be important initiatives to improve the quality of urban development. Policymakers can use these technologies to build more efficient and liveable urban environments, boost economic growth, foster well being and facilitate citizen engagement (OECD, 2018a).

From 2000 to 2017, the population of Asian cities grew from 936 million to 1.6 billion (OECD, 2018a). The ten fastest growing cities in the world are in India (Wood, 2018), while the urban population of Southeast Asia is expected to grow by more than 150 million people by 2040 (IEA, 2017). The speed of urbanisation, however, has outpaced planning and investments, causing a substantial gap in infrastructure. The gap presents ample investment opportunities to the private sector, as Southeast Asia alone needs USD 7 trillion in infrastructure, housing and real estate investments in order to support sustainable urban growth (OECD, 2018a). As cities are increasingly concerned about the downsides of rapid urbanisation, they have started investing in clean water, clean energy, mass transit systems and other measures to improve the quality of urban environments (OECD, 2018a).

A. The digital economy is a precondition for smart city development

In order to develop smart city solutions, countries need to establish the necessary digital infrastructure and technology. Southeast Asia's digital market is expected to increase from USD 31 billion in 2015 to USD 200 billion by 2025. Even though ASEAN's population is increasingly embracing digital services, the adoption of such services by businesses has generally been slower, with regulatory bottlenecks and a lack of trust in electronic transactions stifling the growth of digital systems (Thomas, 2019).

Firms agree that Asian countries need to enhance digital infrastructure and high-speed Internet connectivity to accompany the development of smart cities. The OECD Services Trade Restrictiveness Index (STRI) [34] illustrates that in 2018, the People's Republic of China (hereafter: 'China'), India and Indonesia had more trade restrictions in telecommunications services than most of other countries analysed under this Index (OECD, 2019c). Such restrictions hold back the development of the digital economy, including through the digitalisation of the manufacturing and services sector. Furthermore, underdeveloped ICT infrastructure in Cambodia, India, Indonesia, Lao PDR and Myanmar could increase the costs that operators face in connecting end users to their networks and discourage growth of the already low Internet penetration due to the resulting higher prices (OECD, 2018b). Estimates show that Southeast Asia required approximately USD 64 billion between 2010 and 2020 to fund telecommunications infrastructure (PwC, 2015). Efforts to ensure that the existing infrastructure is efficiently utilised are just as important as infrastructure development (OECD, 2018b). Current budget deficits suggest that the region could face a significant financing gap, which private telecommunications companies can help to fill (OECD, 2018b). For example, Gaoqing in China has leveraged Huawei's Digital Platform to achieve smarter city administration, industry development and multiple benefits for citizens. More than 30 smart applications have been implemented to improve areas such as city governance, enterprise transformation and safe manufacturing (Huawei, 2018).

ASEAN countries are aware of the need to further develop the digital ecosystem and have undertaken multiple initiatives to encourage the adoption of digital technologies, while also seeking to maintain consumer data privacy. For instance, the 2000 e-ASEAN Framework Agreement outlined regional plans to develop the information and communications technology (ICT) sector, reduce the digital divide within and among member states, promote co-operation between the public and private sectors, and promote liberalisation of investment and trade in relevant goods and services (OECD, 2018b). The ASEAN ICT Masterplan 2020 aimed to transform ASEAN into a digital economy by 2020, while the ASEAN Strategic Action Plan for Consumer Protection 2025 aims to develop a Common ASEAN Consumer Protection Framework that includes product liability and safety standards, as well as consumer data privacy policy (Berananda, 2016).

B. Smart cities in Asia offer significant opportunities for the private sector

The global market size of smart cities was valued at USD 71.3 billion in 2018 and is estimated to grow at an annual rate of 18.9% between 2019 and 2025 (Grand View Research, 2019). The Asian smart city market in particular is projected to generate the most opportunities due to rapid urbanisation and the rising demand for energy, infrastructure and mobility solutions (Grand View

[34] The STRI helps to identify which policy measures restrict trade. The STRI database is based on regulations currently in force. STRI indices take the value from 0 to 1, where 0 is completely open and 1 is completely closed. They are calculated on the basis of information provided in the STRI database.

Research, 2019). Furthermore, several Asian governments are promoting the construction of smart cities, with investments expected to grow from USD 55.6 billion in 2013 to USD 260 billion in 2020 (Frost and Sullivan, 2017).

Companies agree that smart technologies and innovations can help solve urban transportation challenges, such as traffic congestion and fatalities generated by the increased use of private motor vehicles. In the Asia region, India, Malaysia, Myanmar, Thailand and Viet Nam have fatality rates above the global annual average of 18.2 per 100 000 people (WHO, 2018). There are many possible targets for initiatives using intelligent transportation system (ITS) tools, but public transportation, vehicle and ride sharing, and logistics services are often the most important areas in which new technologies can improve efficiency (OECD, 2018a). Private solutions, such as ride-sharing mobile applications like Uber and its local competitors, are transforming urban mobility and contributing to reducing the demand for private cars (Pau and Qu, 2016). In Southeast Asia, the largest taxi application player, GrabTaxi, was undertaking almost 3.5 million rides daily across eight countries in 2018 (Iwamoto, 2018). The Chinese mobile transportation platform DiDi Chuxing, together with national authorities, launched an integrated solution for smart city traffic management called Di Di Smart Transportation Brain. Integrating anonymised traffic information with other data from local governments and business partners, this technology provides cities with instruments to design a new range of infrastructure improvements for traffic flow measurement, smart signalling and reversible lane systems (DiDi, 2018).

C. The private sector can be a partner in the development of innovative and smart public services

Services are a key component of smart cities. The liberalisation of trade in services in the region is progressing (OECD, 2018a; 2017b). EMnet participants highlighted how the private sector can contribute to the development of innovative urban services for citizens. Smart cities in Asia are improving citizens' experiences by leveraging new technologies and innovative ways of providing key services such as healthcare, education, housing and other public services in an enhanced and efficient manner. In Bandung, Indonesia, city operations have been enhanced thanks to an IBM command centre launched in 2015. The city uses a global positioning system (GPS) tracking system to monitor traffic and track assets such as public buses, ambulances and fire trucks. Public safety has also been improved by means of a security application called Panic Button that alerts a command centre when citizens tap on it (EDB, 2016). In 2018, the US-ASEAN Smart Cities Partnership was announced in an effort to spur investments in ASEAN's digital infrastructure by US-based technology companies. Google announced a third Singapore-based data centre and a new Google Cloud Platform in Jakarta. Similarly, Amazon plans to invest USD 924 million in Indonesia, in addition to launching its e-commerce service in Viet Nam in collaboration with local e-businesses (Tran and Natalegawa, 2018).

D. Bottlenecks remain with respect to digital access, literacy and skills

Firms at EMnet meetings highlighted some challenges they have encountered while supporting the development and implementation of smart services in Asian cities, notably in the areas of connectivity, regulatory frameworks and digital skills (OECD, 2018b). Digital access, literacy and skills play a critical role in propelling the adoption of technology-led services and have important implications for smart city development. While more than 80% of adults in Singapore accessed the Internet in 2016, this figure was 25% or less in Lao PDR and Myanmar (Pilat, 2017).

Similarly, while more than 25% of Singapore's inhabitants had access to fixed broadband networks in 2016, less than 1% of those living in Cambodia, Lao PDR and Myanmar did (Pilat, 2017). With the exception of Malaysia, Singapore and Thailand, the average speeds over fixed broadband in the seven other ASEAN countries are well below the global average (World Bank, 2019). Individuals, businesses (including SMEs) and governments need reliable, affordable and widespread access to digital networks and services in order to benefit from digital opportunities (Pilat, 2017). However, Internet speeds vary considerably across Asia and many people do not have access to high-speed broadband Internet, which is particularly crucial for data-intensive business applications. High-speed connections are especially rare in India and the Philippines, with only 42% and 39% of Internet Protocol version 4 (IPv4) addresses having speeds above 4 Megabits per second (Mbps), respectively (OECD, 2018b).

Companies discussed how enhancing digital access for individuals and businesses at an affordable price would require sound policy frameworks. They call for policies in support of more investment in telecommunications, a wider diffusion of digital networks, and additional measures (such as national broadband strategies) that can help reach the underserved. Digital trade also has the potential to open up new opportunities for entrepreneurship, innovation and job creation, while digital tools can help firms (and SMEs in particular) overcome barriers to growth by facilitating payments, enabling collaboration, promoting the use of cloud-based services and generating alternative funding mechanisms (Pilat, 2017).

The lack of skilled labour is a key challenge in the region. For countries to be internationally competitive in the digital era, a skilled labour force is needed. Cambodia, Indonesia and Thailand in particular are facing a shortage of skilled labour and a surplus of unskilled labour. The trends show that skills mismatch is likely to decrease in 2021, but a shortage of skilled labour will remain high in many countries (OECD, 2019b).

5.3. Technology can boost productivity in Latin America and the Caribbean

The adoption of new technologies in Latin America and the Caribbean (LAC) can improve productivity and innovation by making processes more efficient and by enabling firms to offer goods and services to customers at a lower price, in addition to creating new types of digital products (Koellinger, 2008). The LAC region has seen its investment momentum and relative productivity beginning to slow from 2011 onwards, partly because of lower commodity prices, greater uncertainty and, more recently, tougher financing conditions. Investments in productive capacity can boost innovation and support overall growth, but research and development (R&D) expenditure in the region lags behind.

In LAC economies, the public sector is responsible for the majority (about 60%) of the region's total R&D expenditure, whereas in OECD economies the private sector invests 70% of this total (OECD et al, 2019). Innovation surveys conducted across Latin American countries including Argentina, Chile, Colombia, Costa Rica, Panama and Uruguay found that firms investing in knowledge are better able to make technological advances, innovate and therefore be more productive than other firms (Crespi and Zuniga, 2012). By 2021, at least 40% of Latin America's GDP is expected to be generated by the digital economy (ECLAC, 2018).

Disruptive technologies are set to bring digital transformation to the Latin American private sector. By 2020, 40% of large enterprises in the region are expected to have fully articulated an organisation-wide digital transformation strategy. Digital technologies are increasingly applied across different sectors in LAC, with 25% of the top global transaction banks, nearly 30% of manufacturers and retailers, and 20% of healthcare organisations expected to use blockchain[35] networks in production by 2021 (ECLAC, 2018). Galvanising investment to boost economic growth requires a shift in investment composition. Currently, investment is often concentrated in the construction sector. This is challenging, because it is not characterised by a high technological content and has the least impact on productivity. Even in the construction sector, investments in machinery and equipment have a higher technological content, and offer greater potential to raise productivity and boost innovation (ECLAC, 2018). The share of machinery and equipment has risen steadily, from 22% of total investment in 1995 to 40% in 2016 (ECLAC, 2018). The adoption of new technological advances by firms leads to increased productivity and economic growth not only for the organisation itself, but also for the economy in general. According to an analysis by the World Bank, an increase of 10 points in fixed broadband penetration could increase GDP growth by 1.38% in developing economies (Minges, 2016). Government policies aim to expand this access. The 2013 telecommunications reform in Mexico, for example, almost halved mobile phone costs and significantly reduced the price of mobile service packages (OECD, 2019d).

A. A tech start-up ecosystem is emerging in regional hubs

Latin America is developing its own tech start-up ecosystem, valued at USD 37 billion in 2018, particularly in regional hubs such as São Paulo, Buenos Aires and Mexico City (IDB, 2017). There are 123 *Tecnolatinas*[36] valued at over USD 25 million, including 9 "unicorns", or companies valued at more than USD 1 billion each. The majority of start-ups are less than 10 years old, and most are taking advantage of mobile connectivity (IDB, 2017). SoftBank Group, a Japanese multinational, is launching the SoftBank Innovation Fund: a technology fund focused exclusively on the Latin American market. It is also creating the SoftBank Latin America Local Hub, which is a new operating group that is to collaborate with SoftBank portfolio companies, helping them enter Latin America and

[35] Blockchain is a combination of already existing technologies that together can create networks that secure trust between people or parties who otherwise have no reason to trust one another. Specifically, it utilises distributed ledger technology (DLT) to store information verified by cryptography among a group of users, which is agreed through a pre-defined network protocol, often without the control of a central authority. The marriage of these technologies gives blockchain networks key characteristics that can remove the need for trust, and therefore enable a secure transfer of value and data directly between parties (OECD, 2018c).

[36] A "Tecnolatina" is a technology-based private company born in Latin America. Most of them are entrepreneur-driven digital ventures with an international footprint.

navigate local markets. Industries of particular focus for the Fund include e-commerce, digital financial services, health care, mobility and insurance (Bloomberg, 2019).

B. Companies are increasingly tapping into the rising demand for e-commerce in LAC

In 2017, Latin America had nearly 350 million mobile Internet subscribers. By 2020, the number is projected to increase to 420 million (GSMA, 2017). Brazil was the fourth largest economy by number of Internet users in the world in 2017 while Mexico was the ninth largest (UNCTAD, 2017). The Latin American market size (number of mobile Internet subscribers) is currently larger than that of the United States and is set to rival the EU's by 2020 (UNCTAD, 2017), allowing companies offering Sofware-as-a-Service[4] to grow exponentially. The mobile ecosystem in the region provides a large, scalable platform for entrepreneurs and innovators too. Start-ups are optimising this platform and have begun to enter the region's rapidly growing disruptive technology spaces, such as augmented and virtual reality, Artificial Intelligence (AI), robotics and the Internet of Things (IoT).

E-commerce in Latin America went from virtually nothing in 1999 to over USD 70 billion in 2015, with many unicorns such as Mercado Libre, Despegar, B2W and OLX active in e-commerce (IDB, 2017). The increase in the number of online shoppers can be attributed to declining smartphone prices, increasing availability of subsidies and finance by mobile operators, and the spread of 4G networks (IDG Connect, 2018). Almost 40% of Argentinians shopped online in 2018, the highest number in the region (Ecommerce Foundation, 2018). In Chile, owing to the country's rapid technological infrastructural development, e-commerce more than doubled in the period 2013-18. In Brazil, middle-class consumers tend to shop online to take advantage of offers provided by discount websites and online coupons (Ecommerce Foundation, 2018). The Swedish furniture store IKEA, for instance, announced in May 2018 a plan to sell through online channels in Chile, Colombia and Peru under a franchise agreement with the Chilean retailer and online market place leader Falabella (Reuters, 2018). Mercado Libre, the region's largest e-commerce platform, is spread across 18 countries and offers 6 e-commerce services selling over a million items per day, accounting for 56 million unique visitors in 2018 (Statista, 2019). Avenida, an e-commerce site based in Argentina that sells goods including home products, clothing and electronic devices, delivers 80% of its orders overnight to 11 pick-up locations in Buenos Aires. These small storefronts are cheaper to run than retail stores, but still allow customers to interact with Avenida's staff, which helps to build trust and brand loyalty (Ecommerce Foundation, 2018).

C. Businesses use technology to adapt to consumers' needs and personalise experiences

A majority of 88% of Latin American CEOs state that investments made to personalise customer experience have generally delivered on the promise of higher growth (KPMG, 2018). They also believe these investments are not enough, with only 14% stating they are able to exceed customer expectations for a personalised experience (KPMG, 2018). Companies such as the home-furnishing brand Magazine Luíza in Brazil anticipated these expectations by providing virtual store business models, allowing customers to see and test products in store and then order them online (Morgan, 2018). Aeroméxico, the Mexican national flag carrier, recently launched new digital services including a new website, check-in kiosks at airports, mobile app and chatbot to make travelling easier and more comfortable (Morgan, 2018). To meet new customers' needs, Grupo Sura, a Colombian multinational company, is creating external alliances through its corporate venture programme. The programme invests in innovation and technology companies with disruptive models, principally in the financial sector (Grupo Sura, n.d.).

D. Companies are rethinking their strategies to meet evolving consumer expectations

To take full advantage of new technologies and to translate them into actual gains, companies participating in the EMnet meetings agreed that traditional market penetration strategies were not always suitable in the Latin American context. Although the region is characterised by higher mobile subscription rates than other emerging regions, a large part of its population is not online. This figure stood at 237 million people or 38% of the population as recently as 2017 (OECD et al., 2019). To address consumers with lower access or less advanced devices, companies developed new products tailored to the unique needs of these clients. Uber, the multinational transportation company, launched Uber Lite in Latin America, a version of the app geared towards users in less developed areas. The app can be downloaded using less than 5MB memory and operates using less than 20MB of data (Moed, 2018). In Mexico, to cater to customers without a smartphone, Uber installed physical totems in malls and stadiums at which customers can request a ride. Its rival Cabify has built a multi-model application for taxis, private cars, electric scooters or bicycles and is active in the main capitals of the region (Cabify, n.d.), which are considerably more congested and generally characterised by higher transportation costs than cities in OECD economies (OECD/CAF/UN ECLAC, 2018). Uber also provides an example of tailoring a business to the specific Latin American context, by allowing cash payments in the region. The company recognises that there is a certain market segment in

society that does not have credit cards, but that does need convenient, reliable transportation. This particularly applies in contexts where credit cards are less common, public safety can be more precarious and public transportation alternatives sparse. Following the implementation of this policy, Uber states that more than 50% of its trips are paid in cash in the region, reaching more than two-thirds in some countries.

While the digital economy has given rise to many new firms, it has also provided an opportunity to traditional ones to innovate their operations. Walmart is a case in point. The US retailer has taken concrete steps to transform its business from physical stores – 3 200 in Latin America – to platforms that are both physical and digital. In Mexico, for example, Walmart launched an application called Cashi which allows customers without bank account or credit card to deposit cash in store, to be used as a payment alternative. The money on the app allows its customers to buy products in-store, but also pay online for services such as telephone or electricity. In addition to making its physical stores more digital, Walmart has also increased its online presence. Customers can order online and pick up their groceries in-store. In another example, Brazil's third-largest bank Bradesco has agreed a sponsored data programme with mobile providers including Telefónica's Vivo, Claro, TIM and Oi, for customers accessing its mobile application (Bradesco, n.d.). By offering access to the app for free to users, it was able to double its users, becoming the number one banking app in the Brazilian Google Playstore.

E. Developing more quality, affordable and accessible digital infrastructure is essential

Companies highlighted that access to quality and affordable digital infrastructure is essential. This includes not only the fixed and digital backbone infrastructure, including the proximity of Internet Exchange Points (IXP), but also access and speed of service. Digitally enabled innovation requires new infrastructure such as broadband, spectrum and new Internet addresses (OECD, 2019d). While significant resources have gone into broadband infrastructure, access to digital technologies remains a challenge. Only 57% of Latin Americans are connected to the Internet and only 103 million citizens have fixed broadband subscriptions. These numbers are lower than the OECD average (OECD et al., 2019). More than 40% of Latin America's population had access to mobile broadband services but did not have a subscription, pointing to affordability or other consumer challenges. This "usage gap" represents an opportunity to connect an additional 267 million consumers (GSMA, 2019b).

Companies stressed the need for public policies to enhance access to digital technologies. They include competition policies in telecommunications markets combined with national broadband strategies, both for current networks as well as for future technologies such as 5G and IoT. Government investments or incentives can help to reduce regional digital divides. Concrete examples of government policies include subsidies, public-private partnerships (PPPs), tax incentives and contributions to Universal Service Funds (USF) – which, if applied correctly, channel additional investments into remote areas (GSMA, 2016). The availability, cost and allocation of spectrum bands can further stimulate private investments into coverage expansion. Sometimes a flexible approach to spectrums (e.g. populated areas versus remote, unpopulated areas) can attract more investment. Smart and adequate spectrum allocation procedures are necessary not only to simplify auctions, but also to encourage a long-term perspective that includes room for investment in infrastructure and in new technologies and services to the benefit of the population.

5.4. Conclusion

While new technologies are increasingly adopted across emerging markets, and provide an important lever for growth, companies indicate the importance of public policies to support the continuing expansion of the digital economy. Policy support was already key before the current crisis generated by the Coronavirus pandemic. With emerging economies across the globe reeling from the pandemic's effects on macroeconomic demand, investment and jobs, policies in support of digitalisation in emerging markets will be even more critical to supporting a recovery that addresses existing social challenges.

The private sector agrees that in the current difficult context, it will be more important than ever before to remain focused on pending structural reform agendas to facilitate more public and private investment in new technologies, such as improving the investment climate and regulatory environment, promoting innovation, enhancing hard and soft infrastructure and closing the digital gap in terms of quality and coverage.

References

A4AI (2019), 2019 Affordability Report, https://a4ai.org/affordability-report/report/2019.

Adepoju, P. (2019), West African states cement free roaming agreement, IT Web Africa, https://itweb.africa/content/G98YdqLY3AZvX2PD.

Adepoju, P. (2018), East Africa rallies to end forced roaming, IT Web Africa, https://itweb.africa/content/DZQ58MVPxXDvzXy2.

AfDB (2019), African Economic Outlook 2019, African Development Bank, Abidjan, www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/2019AEO/AEO_2019-EN.pdf.

Ashiagbor, D. et al. (2018), "Financing infrastructure in Africa", in Banking in Africa: Delivering on Financial Inclusion, Supporting Financial Stability, European Investment Bank, www.eib.org/attachments/efs/economic_report_banking_africa_2018_en.pdf.

AU (2019), "PIDA Week: Private and public sector partnerships key to unlocking Africa's infrastructure funding, Press Release, Programme for Infrastructure Development in Africa", African Union, Addis Ababa, https://au.int/en/pressreleases/20191126/pida-week-private-and-public-sector-partnerships-key-unlocking-africas.

AUC/OECD (forthcoming), Africa's Development Dynamics 2020, AUC, Addis Ababa/OECD Publishing, Paris, https://doi.org/10.1787/c1cd7de0-en.

AUC/OECD (2019), Africa's Development Dynamics 2019: Achieving Productive Transformation, AUC, Addis Ababa/OECD Publishing, Paris, https://doi.org/10.1787/c1cd7de0-en.

AUC/OECD (2018), Africa's Development Dynamics 2018: Growth, Jobs and Inequalities, AUC, Addis Ababa/OECD Publishing, Paris, https://doi.org/10.1787/9789264302501-en.

Banga and Te Velde (2018), Digitalisation And The Future Of Manufacturing In Africa, Overseas Development Institute, London, https://set.odi.org/wp-content/uploads/2018/03/SET_Digitalisation-and-future-of-African-manufacturing_Final.pdf.

Berananda, U. (2016), "E-commerce and Development: An ASEAN Perspective.", World Trade Organization, Geneva, www.wto.org/english/tratop_e/ecom_e/s3usanabernanda_asean.pdf.

Bloomberg (2019), "SoftBank Group Corp. announces launch of new $5 billion technology growth fund for Latin America", press release, 7 March, www.bloomberg.com/press-releases/2019-03-07/softbank-group-corp-announces-launch-of-new-5-billion-technology-growth-fund-for-latin-america.

Bradesco (n.d.), Abra sua conta pelo App Bradesco, https://banco.bradesco/abrasuaconta.

Cabify (n.d.), "About us", Cabify webpage, https://cabify.com/en/about-us.

Crespi, G. and Zuniga, P. (2012), "Innovation and productivity: Evidence from six Latin American countries", World Development, Vol. 40/2, Elsevier, pp. 273-290.

DiDi (2018), "DiDi introduces smart transportation solution for traffic management", www.didiglobal.com/news/newsDetail?id=186&type=news.

ECLAC (2018), Economic Survey of Latin America and the Caribbean, 2018, United Nations Publication, Santiago, https://repositorio.cepal.org/bitstream/handle/11362/43965/131/S1800836_en.pdf.

Ecommerce Foundation (2018), Latin America Ecommerce Report 2018, Ecommerce Foundation, Amsterdam, https://d.dam.sap.com/m/z1bF5E4/Latin%20America%20Ecommerce%20Foundation%20Report%20_%20English%20Edited.pdf

EDB (20 October 2016), "The business of creating Asia's smart cities", webpage, www.edb.gov.sg/en/news-and-events/insights/innovation/the-business-of-creating-asia-s-smart-cities.html.

Grand View Research (2019), Smart Cities Market Analysis Report By Application (Governance, Buildings, Utilities, Transportation, Healthcare, Environmental Solution), By Region, And Segment Forecasts, 2019 - 2025, Grand View Research, San Francisco, ww.grandviewresearch.com/industry-analysis/smart-cities-market.

Grupo Sura (n.d.), Grupo Sura website, www.gruposura.com/en/our-company/about-grupo-sura.

GSMA (2020), The Mobile Economy 2020, GSMA Intelligence, London, www.gsma.com/mobileeconomy/wp-content/uploads/2020/03/GSMA_MobileEconomy2020_Global.pdf.

GSMA (2019a), The Mobile Economy: Sub-Saharan Africa 2019, GSMA Intelligence, London, www.gsma.com/subsaharanafrica/resources/the-mobile-economy-sub-saharan-africa-2019.

GSMA (2019b), The Mobile Economy: Latin America 2019, GSMA Intelligence, London, www.gsma.com/mobileeconomy/latam.

GSMA (2017), The Mobile Economy: Latin America and the Caribbean 2017, GSMA Intelligence, London, www.gsma.com/latinamerica/resources/mobile-economy-latin-america-caribbean-2017.

GSMA (2016), GMSA Latin America, Country Overview: Argentina – Impact of the Mobile Ecosystem: Perspectives and Opportunities, GSMA Intelligence, London, www.gsma.com/latinamerica/resources/argentina-impact-mobile-ecosystem-perspectives-opportunities.

Huawei (2018), "Huawei Customers Recognized for Smart City Achievements at Smart City Expo World Congress 2018", webpage, https://forum.huawei.com/enterprise/en/Huawei-Customers-Recognized-for-Smart-City-Achievements-at-Smart-City-Expo-World-Congress-2018/thread/477029-943#pid2803847.

IDB (2017), Tecnolatinas: Latin America Riding the Technology Tsunami, Inter-American Development Bank, Washington, D.C., https://publications.iadb.org/publications/english/document/Tecnolatinas-Latin-America-Riding-the-Technology-Tsunami.pdf.

IDG Connect (2018), "A look at the mobile ecosystem in Latin America", www.idgconnect.com/idgconnect/opinion/1020747/look-mobile-ecosystem-latin-america.

IEA (2017), Southeast Asia Energy Outlook 2017, International Energy Agency, Paris, https://doi.org/10.1787/9789264285576-en.

IFC (2019), Bringing Africa up to high speed, International Finance Corporation, Washington, D.C., www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/cm-stories/cm-connecting-africa#page8.

INSEAD (2019), The Global Talent Competitiveness Index 2019: Entrepreneurial Talent and Global Competitiveness. Fontainebleau, France, www.insead.edu/sites/default/files/assets/dept/globalindices/docs/GTCI-2019-Report.pdf.

Iwamoto, K. (2018) "Grab aims to stay on top with evolution into 'everyday superapp'.", Nikkei Asian Review, https://asia.nikkei.com/Business/Company-in-focus/Grab-aims-to-stay-on-top-with-evolution-into-everyday-superapp.

Koellinger, P. (2008), "The relationship between technology, innovation, and firm performance — Empirical evidence from e-business in Europe", Research Policy, Vol. 37, Elsevier, pp. 1 317-1 328.

KPMG (2018), Geared for Growth: Latin America's CEOs Prepare for a More Integrated Future, 2018 KPMG Cadenas Dosal, S.C., Mexico, https://home.kpmg/content/dam/kpmg/xx/pdf/2018/05/geared-for-growth-kpmg-latin-america-ceo-outlook-2018-english.pdf.

Minges, M. (2016), "Exploring the relationship between broadband and economic growth", Background Paper Digital Dividends, World Development Report, World Bank Group, Washington, D.C. http://pubdocs.worldbank.org/en/391452529895999/WDR16-BP-Exploring-the-Relationship-between-Broadbandand-Economic-Growth-Minges.pdf.

Moed, J. (2018), "Uber's wild ride to make Latin America its fastest growing region", Forbes, 20 December 2018, www.forbes.com/sites/jonathanmoed/2018/12/20/is-uber-operating-illegally-in-its-fastest-growing-region/#52f2dcf21925.

Morgan, B. (2018), "The 10 most customer-focused companies in South America", Forbes, 18 December, www.forbes.com/sites/blakemorgan/2018/12/18/the-10-most-customer-focused-companies-in-south-america/#55 5d9245201e.
Mutula, S.M. and J. Mostert (2010), "Challenges and opportunities of e-government in South Africa", The Electronic Library, Vol. 28/1, Emerald Group Publishing, Bingley, pp. 38-53, http://dx.doi.org/10.1108/02640471011023360.
Myles (2019), 13 out of 15 SADC countries signed the MOU on the abolition of roaming charges, Extensia, https://extensia-ltd.com/2019/09/17/13-out-of-15-sadc-countries-signed-the-mou-on-the-abolition-of-roaming-charges (24 February 2020).
OECD (2020a), Economic Outlook for Southeast Asia, China and India 2020 – Update: Meeting the Challenges of COVID-19, OECD Publishing, Paris, https://doi.org/10.1787/e8c90b68-en.
OECD (2020b), COVID-19 in Emerging Asia: Regional socio-economic implications and policy priorities, OECD Publishing, Paris, https://read.oecd-ilibrary.org/view/?ref=130_130765-idjokqfnuf&title=COVID-19-in-Emerging-Asia_Regional-socio-economic-implications-and-policy-priorities.
OECD (2020c), COVID-19 and Africa: Socio-economic implications and policy responses, OECD Publishing, Paris, https://read.oecd-ilibrary.org/view/?ref=132_132745-u5pt1rdb5x&title=COVID-19-in-Africa-Regional-socio-economic-implications-and-policy-priorities.
OECD (2020d), COVID-19 in Latin America and the Caribbean, OECD Publishing, Paris, https://read.oecd-ilibrary.org/view/?ref=129_129904-k3xp17fqbl&title=COVID-19-in-Latin-America-and-the-Caribbean-Regional-socio-economic-implications-and-policy-priorities.
OECD (2019a), Shaping the Digital Transformation in Latin America: Strengthening Productivity, Improving Lives, OECD Publishing, Paris, https://doi.org/10.1787/8bb3c9f1-en.
OECD (2019b), Economic Outlook for Southeast Asia, China and India 2020: Rethinking Education for the Digital Era, OECD Publishing, Paris, https://doi.org/10.1787/1ba6cde0-en.
OECD (2019c), OECD Services Trade Restrictiveness Index: Policy trends up to 2019, OECD Publishing, Paris, https://issuu.com/oecd.publishing/docs/stri-policy-trends-2019-web?e=3055080/67430459.
OECD (2019d), Boosting Productivity and Inclusive Growth in Latin America, OECD Publishing, Paris, https://doi.org/10.1787/9789264269415-en.
OECD (2019e), "Enhancing the contribution of digitalisation to the smart cities of the future", background paper submitted to the OECD Ministerial Council Meeting, www.oecd.org/cfe/regional-policy/Smart-Cities-FINAL.pdf.
OECD (2019f), Going Digital: Shaping Policies, Improving Lives, OECD Publishing, Paris, https://doi.org/10.1787/9789264312012-en.
OECD (2019g), Measuring the Digital Transformation: A Roadmap for the Future, OECD Publishing, Paris, https://doi.org/10.1787/9789264311992-en.
OECD (2018a), Economic Outlook for Southeast Asia, China and India 2019: Towards Smart Urban Transportation, OECD Publishing, Paris, https://doi.org/10.1787/saeo-2019-en.
OECD (2018b), Economic Outlook for Southeast Asia, China and India 2018: Fostering Growth through Digitalisation, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264286184-en.
OECD (2018c), OECD Blockchain Primer, OECD, Paris, www.oecd.org/finance/OECD-Blockchain-Primer.pdf.
OECD (2017), OECD Digital Economy Outlook 2017, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264276284-en.
OECD et al. (2020), Latin American Economic Outlook 2020: Digital Transformation for Building Back Better, OECD Publishing, Paris, https://doi.org/10.1787/e6e864fb-en.
OECD et al. (2019), Latin American Economic Outlook 2019: Development in Transition, OECD Publishing, Paris, https://doi.org/10.1787/g2g9ff18-en.
OECD/CAF/UN ECLAC (2018), Latin American Economic Outlook 2018: Rethinking Institutions for Development, OECD Publishing, Paris, http://dx.doi.org/10.1787/leo-2018-en.
OECD/WTO (2017), Aid for Trade at a Glance 2017: Promoting Trade, Inclusiveness and Connectivity for Sustainable Development, World Trade Organization, Geneva/OECD Publishing, Paris, https://doi.org/10.1787/aid_glance-2017-en.
Pau, J. and Qu, H. (2016), Smart Cities and Urban Innovation in Asia, Asia Business Council, Hong Kong, www.asiabusinesscouncil.org/docs/SmartCities.pdf.
Pilat, D. (2017) "Background note: Opportunities and Policy Challenges of Digitalisation in Southeast Asia.", 24 August, OECD, www.oecd.org/southeast-asia/events/regional-forum/Forum_Note_Digital_Transformation_STI.pdf.
PwC (2015), Smart cities in Southeast Asia: The opportunity for Telcos, PwC Consulting Services, www.pwc.com/my/en/assets/publications/smart-cities-in-southeast-asia.pdf.
Reuters (2018), "IKEA pushes into South America with partner Falabella", Reuters Business News, 17 May, www.reuters.com/article/us-ikea-falabella/ikea-signs-franchise-agreement-with-falabella-for-peru-chile-and-colom bia-idUSKCN1II2W4.
Richard, S. (2019), "3 reasons why most Africans aren't on the Internet – and how to connect them", web page, World Economic Forum, Geneva, www.weforum.org/agenda/2019/08/3-reasons-why-most-africans-arent-on-the-Internet-and-how-to-connect-them.
Statista (2019), "Most popular online retailers in Latin America as of May 2018, based on number of unique visitors (in millions)", Statista, www.statista.com/statistics/321543/latin-america-online-retailer-visitors.
Thomas, J. (2019), "Strengthening ASEAN's digital economy", 17 June, The ASEAN Post, webpage, https://theaseanpost.com/article/strengthening-aseans-digital-economy.
Tralac (2017), COMESA region set to abolish roaming charges, www.tralac.org/news/article/12229-comesa-region-set-to-abolish-roaming-charges.html.
Tran, K. and A. Natalegawa (21 December 2018), "Supporting Southeast Asian Smart Cities is Critical for the Region & the United States", CSIS Asia Program blog, www.cogitasia.com/supporting-southeast-asian-smart-cities-is-critical-for-the-region-the-united-states.
UNCTAD (2017), "IER - Digital opportunities In Latin America and the Caribbean can be further harnessed, says UNCTAD", press release, 2 October, United Nations Conference on Trade and Development, Geneva, https://unctad.org/en/pages/PressRelease.aspx?OriginalVersionID=432.
UNECA (2018), "Vera Songwe advocates AfCFTA, digital identity, investment opportunities and strengthened partnerships at UNGA side events", press release, 1 October, United Nations Economic Commission for Africa, www.uneca.org/stories/vera-songwe-advocates-afcfta-digital-identity-investment-opportunities-and-strengthened.
WHO (2018), Global Status Report on Road Safety 2018, World Health Organisation, Geneva, www.who.int/violence_injury_prevention/road_safety_status/2018/en.
Wood, J. (2018), "These countries are all building brand-new cities", web page, World Economic Forum, Geneva, www.weforum.org/agenda/2018/12/all-of-the-world-s-top-10-cities-with-the-fastest-growing-economies-will-be-in-india.
World Bank (2019), The Digital Economy in Southeast Asia: Strengthening the Foundations for Future Growth, World Bank Group, Washington, D.C., http://documents.worldbank.org/curated/en/328941558708267736/pdf/The-Digital-Economy-in-Southeast-Asia-St rengthening-the-Foundations-for-Future-Growth.pdf.

Chapter 6
Financial Inclusion: Going Digital to Meet Customer Needs[37]

Momina Aijazuddin - Global Head Microfinance at IFC - International Finance Corporation (Washington, United States)

Executive Summary

Over the last twenty years, the emergence of new mobile technologies and a new level of communications connectivity changed the financial services landscape. The revolution in connectivity spurred by the widespread rollout and adoption of internet and mobile technologies makes new business models of delivering affordable and sustainable financial services to the masses possible. As a result, financial access and inclusion have risen dramatically. Yet, globally, 1.7 billion people are still unbanked, the majority of whom are concentrated in Asia and Sub Saharan Africa, and hundreds of millions of formal and informal small businesses have unmet financing needs. For many financial service providers, the cost of serving low-income customers and small businesses is high and it is often difficult to reach remote and rural customers efficiently. At the same time, many potential customers are without credit history or collateral, keeping financial services out of their reach.

A new landscape for financial services, however, is emerging. New players are transforming the way individuals in emerging markets access and use financial services. These innovative solutions will allow more users to access financial services quicker and cheaper than ever before. This chapter discusses some of the major trends in financial inclusion through the IFC experience and highlights the need for further responsible investment and innovation in this space.

6.1. Introduction

Financial access and inclusion[38] are key enablers to reducing poverty and boosting prosperity. Financial services enable low-income people to transfer and receive funds, invest in enterprises to enhance productivity, smooth consumption, and build resilience against shocks such as illness and weather-related events.

Globally, however, 1.7 billion people are still unbanked, the majority of whom are concentrated in Asia and Sub Saharan Africa, and hundreds of millions of formal and informal small businesses have unmet financing needs. For many financial service

[37] This paper was developed with support from Matthew Brown, Meraj Husain and Allison Ryder of International Finance Corporation's Micro-Small-Medium Enterprise and Digital Finance team.

[38] Financial access is a first step toward the broader goal of financial inclusion, whereby individuals and businesses have not only access but use a range of affordable financial products and services – transactions, payments, savings, credit and insurance – that meet their needs and are delivered in a responsible and sustainable way.

providers, the cost of serving low-income customers and small businesses is high and it is often difficult to reach remote and rural customers efficiently. At the same time, many potential customers do not have a credit history or collateral, which keeps financial services out of their reach.

Over the last twenty years, the emergence of new mobile technologies and a new level of communications connectivity has changed the financial services landscape. The revolution in connectivity spurred by the widespread rollout and adoption of internet and mobile technologies makes new business models of delivering affordable and sustainable financial services to the masses possible. As a result, financial access and inclusion have risen dramatically.

New players are disrupting the market for financial services. Big tech including e-commerce and social media platforms which dominate Silicon Valley/US and the China market are leveraging data to compete in the financial services sector. Fintech companies with business models that are innovative and agile have become pervasive in both developed and emerging markets. Meanwhile, mobile network operators with mobile money offerings have established a strong foothold in Sub Saharan Africa. These new players who are designed for scale and speed have accelerated the pace of innovation, particularly in the payments space, and increasingly are developing broader financial service solutions for the mass market. To remain relevant, digitalization is increasingly important to traditional financial service providers who are being outpaced by their more innovative and agile fintech competitors.

At the same time, advances in digital technologies are changing the demand side of the equation. As individuals at the bottom of the pyramid become more digitally literate and capable, they seek to take advantage of these tools to improve aspects of their daily lives. As their preferences and expectations change, financial service providers are challenged to become more demand-driven and deliver customer-centric products and services that are more accessible, affordable, flexible, intuitive, and convenient. In addition to meeting the changing demands of existing clients, the challenge remains to reach structurally excluded groups and to offer more tailored products to underserved segments.

The International Finance Corporation (IFC), a member of the World Bank Group, is the largest global development institution focused exclusively on the private sector in developing countries. IFC addresses financial inclusion challenges by investing in leading financial sector players, advising investment clients and other private sector clients, and through advisory services to stakeholders in financial infrastructure. For over twenty years, IFC has played a pioneer role in the financial inclusion sector by making investments in over 800 institutions, banks, microfinance providers, non-banking financial institutions and funds.

In 2015, with the launch of the World Bank Group's Universal Financial Access (UFA) by 2020 initiative,[39] IFC committed to extend formal financial services to 600 million people — many of the focus countries are on the African continent. As a key strategy to achieve this target, IFC is partnering with traditional financial institutions to help them adopt new technologies and adapt their products, processes, and culture to the digital age of banking, and is investing in the next generation of financial services companies.

This chapter discusses some of the major trends in financial inclusion through the IFC experience and highlights the need for further responsible investment and innovation in this space.

[39] At the 2015 World Bank Group-IMF Spring Meetings, the World Bank Group with private and public sector partners set an ambitious target to achieve Universal Financial Access by 2020 (UFA 2020). The UFA 2020 goal envisions that adults globally will be able to have access to a transaction account or electronic instrument to store money, send and receive payments.

6.2. The changing landscape

Over the past ten years with the growth of internet and mobile connectivity,[40] digital financial services – especially digital payments – has taken off. Digital finance, enabled by fintech, has lowered costs and increased the speed, security and transparency of transactions. Digital finance allows for more tailored financial services that serve the poor and helps governments quickly and securely reach people with cash transfers and other forms of financial assistance. It allows people to transfer funds, including cross border remittances, and to pay bills from their homes, markets or shops, with limited physical contact which is important in the era of COVID-19.

bKash: Founded in 2010, bKash is a mobile financial service provider in Bangladesh that allows users to make payments via mobile phones to both banked and unbanked people. bKash can be accessed via all the mobile networks operating in Bangladesh through a network of more than 180,000 agents throughout urban and rural areas of Bangladesh with over 30 million registered accounts.

The innovation and spread of mobile money have enabled many countries in emerging markets to leapfrog from paying with cash to using mobile payments, skipping over certain payment methods including card-based payments. The rapid transformation of mobile payments has provided access to basic financial services to millions of people in emerging markets. For example, in Bangladesh, bKash offers basic financial services through a mobile wallet and agent network. In 2013, IFC made a $10 million equity investment in bKash to support the growth of the service. Today, bKash serves 30 million people and processes more than 80 percent of mobile banking transactions in Bangladesh.

Equity Group: Founded in 1984, Equity Bank is a commercial bank with a focus on inclusive financial services. With operations in Uganda, South Sudan, Rwanda, Tanzania, and DRC, Equity has 14.3 million customers - the majority are small savers - and US$ 6.8 billion in assets as of June 2020. In 2014, Equity received its Mobile Network Virtual Operator license in order to launch Equitel, a mobile wallet that is connected to an actual bank account at Equity Bank and is not a virtual intermediary account like the existing mobile lending and savings partnerships between banks and telecoms in Kenya. With 2.1m subscribers, Equitel processes 21.7 percent of the value of Kenya's mobile-money transactions, second only to Safaricom's M-Pesa. As of June 2020, 83 percent of Equity's transactions are through mobile and internet banking.

Globally, there are over 1 billion registered mobile money accounts across 95 countries, with US $1.9 billion transacted via these accounts per day. Sub-Saharan Africa added over 50 million accounts in 2019 and the region is predicted to surpass over half a billion registered accounts by the end of 2020. Mobile money has reshaped the financial landscape in Africa and banks have embraced digitalization to stay competitive. Equity Bank[41], a Kenyan commercial bank with operations across Sub-Saharan Africa, expanded its banking operations and became a licensed Mobile Network Virtual Operator under the name Equitel. This allows Equitel to fully control the customer experien ce and offer a mobile wallet, payments, and access to savings, loan and insurance products direct to their customers.

The potential benefits of digital financial services to people, business, and governments, however, remain largely untapped. It is estimated that widespread use of digital financial services have the potential to boost the annual GDP of emerging economies by US $3.7 trillion by 2025, with one-third coming from the financial inclusion of individuals and small businesses and two-thirds from the increased productivity of larger businesses and government.

[40] Internet users now exceed 4 billion globally, and unique mobile users exceed 5 billion with a penetration rate of 67 percent (GSMA *State of the Industry Report on Mobile Money 2020).*

[41] Equity Bank has been a client of IFC since 2012

6.3. Who is left behind?

Of the 1.7 billion unbanked globally, the majority of whom are largely concentrated in Asia and Sub-Saharan Africa regions. Seventy percent of all financially excluded people live in just 25 countries.[42] Women account for 56 percent of all unbanked adults. About a quarter of unbanked adults live in the poorest 20 percent of households within their countries.[43]

Lack of financial access is the result of a number of factors, including cost to reach dispersed populations, lack of documentation, cost to serve relative to earnings potential from low income customers, and, for access to credit, lack of collateral or credit history. Digitalization and fintech solutions can help bring financial services to these populations. They can bring efficiencies to each step of the lending process—lowering origination costs; using data to improve credit assessment and underwriting; and automating payments and collections.

The Inclusive Fintech 50 is an initiative led by IFC and other partners to provide a competitive process led by an independent judging panel of experts to identify early-stage fintechs that have a promising model to drive financial inclusion. This initiative is meant to shine a light on emerging fintechs that offer to address challenges for credit, savings, insurance, payments, remittances, and other services that target unbanked or underserved segments.

Lack of access to internet and smartphone technology, however, may leave certain segments behind. Of the 8 billion mobile connections, only 65 percent of users have access to smartphone technology. Further product innovation over basic mobile infrastructure and services – voice, SMS text and unstructured supplementary service data (USSD) – remains essential for access to basic digital financial services for poorer segments.

6.4. The transition to a digital model for financial services

Microfinance is a proven business model that reaches low-income people on a sustainable basis. Over the past twenty years, IFC has made over 600 investments in microfinance including numerous greenfield microfinance institutions in fragile and conflicted states including Afghanistan, Liberia and Democratic Republic of Congo. The performance of IFC's investments has been stronger when institutions transition into broader financial service providers (savings, micro-small-medium enterprise loans, other services) and attract local private investors. Among the more successful examples are Bandhan Bank which transformed from a non-governmental organization to a publicly listed universal bank in India, and ACLEDA Bank which began operations as a non-governmental organization providing micro credits to war victims and later transformed to a specialized bank and then full-fledged commercial bank. ACLEDA Bank is Cambodia's largest commercial bank with over 2.5 million deposit holders.

The traditional microfinance model, however, has faced two main challenges—cost and efficiency, and limited scale—that point to shortcomings of their business models. The "digital disruption" is changing the economics of financial service delivery to benefit the underserved and unbanked in fundamental ways and forcing traditional microfinance institutions to adapt. The pace of innovation and greater competition continue to pose opportunities and threats for microfinance institutions.

While having strong development impact, the microfinance institutions bore heavy costs with this operating model. Since then, many microfinance institutions have embraced agent banking and mobile wallets to reduce costs. In 2014, Microcred (now known as Baobab) launched an agent network in Senegal and Madagascar to expand its business beyond urban areas to reach a larger, rural customer base. Baobab now offers payment and transfers via agent network through physical and digital distribution thanks to more than 1,000 points of services and 45 percent of transactions through a mobile experience.

Baobab: A microfinance holding company which has now expanded into financial inclusion and digitalization focusing on financial inclusion for individuals and small businesses in Africa and China. Founded in 2005, Baobab employs more than 3,800 people and has over 1,000 points of presence across Madagascar, Senegal, Nigeria, Ivory Coast, Mali, Zimbabwe, Burkina Faso, Tunisia, Democratic Republic of Congo and China. Baobab has originated more than US $3.5 billion in loans to individuals and MSMEs.

[42] The UFA Initiative focuses on 25 countries including Bangladesh, Brazil, China, Colombia, Cote d'Ivoire, DRC, Egypt, Ethiopia, India, Indonesia, Kenya, Mexico, Morocco, Mozambique, Myanmar, Nigeria, Pakistan, Peru, Philippines, Rwanda, South Africa, Vietnam, Tanzania, Turkey, and Zambia where 70% of all financially excluded people live.

[43] Global Findex Database

Increasingly, we are seeing partnerships between fintechs and traditional financial services providers that leverage a "tech and touch" model that allows for targeting unique customer segments with tailored financial products. IFC investees Ant Financial, now Ant Group[44], China's largest fintech, and CFPA, China's largest microfinance institution, partnered to share Ant's approach to use big data, cloud computing, and artificial intelligence to expand financial inclusion. Specifically, Ant has used their expertise in collecting multi-dimensional data on customers and risk modeling to support fast, cost-effective credit approvals. Like most traditional microfinance institutions, CFPA's customer data comes from on-site interviews. Ant is helping CFPA change this process by using data from utility bills, data from the internet, and mobile phone usages to CFPA to acquire new customers and form a better risk portrait.

Ant Group: Ant Group, formerly known as Ant Financial, is a fintech company that offers an array of digital financial services including mobile payments, savings, personal investing, lending, and credit scoring. It was founded in 2014 as a subsidiary of China's Alibaba Group. Ant operates Alipay, the world's largest online payments platform with 711 million monthly active users as of June 2020, which allows customers to engage in e-commerce and other online transactions through a mobile wallet.

The emergence of the platform business model spearheaded by companies like Amazon and Alibaba represents a new and cost-effective way to reach new consumers. Platforms connect buyers and sellers through a digital environment which can offer an array of services including e-commerce, social media, and financial services. Platforms leverage a digital ecosystem (often extending across sectors without borders) and use the Data-Network-Activity (DNA) model: (1) Data is collected from platform and used to offer customized services; (2) Network effects as increased number of users improves the service; (3) Activity - generating further user activity.

The DNA loop is self-reinforcing - more data generates stronger network effects, which elicit more activity, leading to yet more data. This data allows some platforms to develop a credit score to merchants and other users based on their activity and provide them with financial services. This solves a persistent issue with lending – as screening borrowers is a costly activity for financial service providers especially as some small merchants may lack formal documentation or audited financial statements. Big techs like Amazon, Alibaba, and MercadoLibre can tap relevant data from their existing platforms and overcome informational problems in lending.

Jumia is an example of a platform model working in Africa. Known as the "Amazon of Africa", Jumia is a Nigerian tech company focusing on e-commerce, logistics, and increasingly financial services. Starting in 2017, Jumia has partnered with IFC investee Branch, a US-based mobile lender, to use their alternative data and AI for credit scoring of small businesses on their platform. In Kenya, sellers on Jumia, selected on their sales history, access loans up to US $300, repayable within six months, to finance their businesses.

Branch: Founded in 2015, Branch International uses big data and machine learning to develop credit scoring algorithms and make small personal loans starting at US $2 directly to an individual's mobile wallet. Operating in India, Kenya, Mexico, Nigeria and Tanzania, Branch has more than 3 million customers and has processed 13 million loans and disbursed more than US $350 million.

6.5. COVID-19 as an accelerator to digitalization

The current COVID-19 pandemic has amplified the urgency of utilizing fintech to keep financial systems functioning and keep people safe during this time of social distancing, falling demand, reduced input supply, tightening of credit conditions and rising uncertainty. World Bank's new poverty projections suggest that by 2021 an additional 110 to 150 million people will have fallen into extreme poverty, living on less than $1.90 per day. The crisis has demonstrated the need to digitize, not only to expand reach but to ensure resilience of core operations. Technology has created new opportunities for digital finance to accelerate and enhance financial inclusion during the COVID-19 pandemic. Examples include mobile networks waiving or reducing fees for digital financial service transactions and simplifying know your customer norms/encouraging use of digital channels.

[44] Ant Group subsidiaries include Alipay, Huabei, MYbank, Jiebei, Ant Fortune, Ant Insurance Services, Zhima Credit, and ZOLOZ. International partners include Easypaisa, Paytm, Zomato, bKash, Ascend Money, Kakaopay, GCash Inc., Emtek, Touch 'n Go eWallet, and Cheung Kong Hutchinson.

These new technologies must be designed and implemented carefully to manage their risks, particularly for the poor and vulnerable, so as not to exacerbate the challenges posed by this crisis. As emphasis is placed on efficiency and resiliency, we will likely see further changes in business models and approaches, such as better use of data, to stabilize existing operations. Successful providers going forward will be those that effectively deploy appropriate technologies across channels, products, and processes, to make current offerings more accessible and efficient, to better manage risk, and to develop new business models.

Fawry: The Egyptian fintech began operations in 2008 to facilitate digital utility payments. Their e-payment platform has now grown to 166,500 locations - including retail shops, ATM servicing, among others as well as merchant and e-commerce payments. Since the beginning of the COVID-19 pandemic, Fawry has quadrupled in value as cashless payment transactions have reached 3 million each day, serving 29 million customers. It is now one of the most valuable companies in Egypt (Bloomberg).

Digital financial services have dramatically improved levels of financial inclusion in many emerging markets. Nonetheless, many mobile money users rely on cash in/cash out with limited use of savings products, and bill/merchant payments. Some markets have seen big jumps in the volume and value of digital payments as a result of COVID-19. In other markets, where digital finance was dependent on agent-assisted transactions, there has been a fall in volumes as agents were forced to close their businesses during lockdowns. At the same time, governments are turning more to digital transfers of social payments as a way to reach those in need, and businesses are using digital payments to serve customers remotely or limit physical interactions. Customer behaviors may shift with these tides. Thus, with appropriate support and actions, COVID-19 could act as an impetus for the transition to more digital ecosystems and inclusive financial services.

6.6. Consumer protection, data privacy and exclusion

While the benefits of digital financial services for the poor are well documented, they introduce new risks to users. Weak financial and digital literacy makes the potential harm from risks including structural exclusion, discrimination, consumer protection, data protection and privacy, and fraud even greater, especially in emerging markets. Because digital finance is readily available, automated, and onboarding may be remote, this creates additional risks that are distinct from traditional models. Lack of transparency and misinformation in product marketing may put consumers at risk for over indebtedness and loss of funds. Similarly, lack of consumer understanding on the cost of loans and consequences of default exacerbate this risk.

Unequal access to technology limits fintech's potential and increases the digital divide as scale-based business models favor large and connected markets. Uneven access to connectivity infrastructure, smartphones, and affordability of data-plans, disproportionally affects women and the poor. Traditionally excluded customers may be more vulnerable to compromised data privacy, identity theft, and fraud, because they lack alternatives. The potential for these risks to cause harm is greater where consumers have low levels of financial capability, as is more often the case for the poor.

Responsible Investor Guidelines: Together with private sector investors, IFC has been leading a global effort to develop new guidelines for responsible investing in digital finance. The primary objective of the Investor Guidelines is to catalyze broad awareness and mobilize action for best practice standards for investors and for innovators in digital finance. The Investor Guidelines also aim to develop actionable tools for investors to recognize and manage risks, catalyze private sector awareness, and share knowledge among industry practitioners.

New research from India and Kenya adds to the growing body of evidence that customers' have concerns about data privacy and how they interact with financial services. For example, in Kenya, 52 percent of low-income customers selected the costlier of two loan options because of its stronger privacy protections. This shows that poor people care about their data privacy and place a financial value on it. There is room to enhance customer experience while protecting a customer's wellbeing. It is up to the financial service providers to see the importance of having sound data privacy and protection policies and how this can help attract customers in a competitive environment.

6.7. Emerging lessons from the World Bank Group Universal Financial Access 2020 Initiative

There are many opportunities to provide access to financial services to unbanked adults who are informally financially active who rely on cash to make payments, save, or receive government transfers. Since 2014, the World Bank and IFC along with numerous private sector partners have been working to close the gap in financial access.

To reach the UFA 2020 goal, together, the WBG and IFC committed to help enable 1 billion adults to be reached with transaction accounts through knowledge, technical and financial support and advisory services, and the 34 private sector partners publicly declared their own goals to reach hundreds of millions of previously unbanked individuals. Key partners include leading payments and technology companies such as Visa, Mastercard, Ant Financial, telecoms such as Vodafone, financial institutions such as Equity Bank in Kenya and CFPA Microfinance in China and industry associations such as GSMA.

Emerging learnings from these efforts have been significant and are applicable to the broader financial services sector moving forward. These include:

- Inclusion is key**.** Access is the first step, but usage and the benefits individuals and businesses derive from financial inclusion is even more critical**.**
- Hard to reach and digital divide. Key gaps in access remain, especially among vulnerable, women, and rural populations. There is a need to address the urban-rural divide and the gender gap persistent in several countries.
- Digital access and inclusion**.** Digital payments ecosystems need to be more complete in order to expand the move from cash to electronic forms of payment.
- Financial health and resiliency of individuals and MSMEs**.** Financial health and resiliency of individuals and businesses is vital. Expansion of financial literacy and digital capability programs and responsible finance and prevention of over-indebtedness remain priorities.

As non-bank players become important in provision of financial services, the adequacy of current financial sector safety needs to be revisited. To address all the above, policy and regulatory frameworks will play a critical role.

6.8. Looking Forward

In the new landscape for financial services, lines have blurred between financial sector providers, whether banks, microfinance institutions, fintech companies and platforms. New players will continue to transform the way individuals in emerging markets access and use financial services. These innovative solutions will allow users to access financial services quicker and cheaper than ever before. They are, however, only part of the solution. The future of finance will undoubtedly be digitally enabled with opportunities to develop digital banking, savings and credit products, and to digitize supply chains and merchant payments that serve the base of pyramid. Ultimately developing products that meet the needs and preferences of customers will be critical to success.

Reference

Demirgüç-Kunt, Asli and others, *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution* (Washington: World Bank Group, 2018).
Lieberman, Ira and others, *The Future of Microfinance* (Washington: Brookings, 2020).
Aijazuddin, Momina and others, *Smart Lessons: Small Beginnings for Great Opportunities—Lessons Learned from 20 Years of Microfinance Projects in IFC* (Washington: IFC, 2015).
bKash's Success Establishes Mobile Financial Services in Bangladesh (Washington: IFC).
Mobile Economy 2020 (London: GSMA, 2020).
Manyika, James and others, Digital Finance for All: Powering Inclusive Growth in Emerging Economies (San Francisco: McKinsey Global Institute, September 2016).
Ibid.
Pazarbasioglu, Ceyla and others, *Digital Financial Services* (Washington: World Bank Group, 2020).
Bull, Greta, *After the Storm: How Microfinance Can Adapt and Thrive* (Washington: CGAP, 2020).
Sahay, Ratna and others, *The Promise of Fintech Financial Inclusion in the Post COVID-19 Era* (Washington: International Monetary Fund: 2020).
Vidal, Maria Fernandez, *Data Privacy Concerns Influence Financial Behaviors in India, Kenya* (Washington: CGAP, 2020).
Key UFA partners can be found on Universal Financial Access website (https://ufa.worldbank.org/en/partners).

Chapter 7
Global Value Chain Transformation in the 2020s and Implications for Emerging Economies

James Zhan - Director, Investment and Enterprise at UNCTAD (Geneva, Switzerland)
Isya Kresnadi - Economic Affairs at the UN (Geneva, Switzerland)

Executive Summary

The global crisis caused by COVID-19 and the subsequent transformation of global value chains in the decade ahead will reshape the global trade and investment landscape, particularly that of the emerging markets. They will also drastically alter the modes of operation of international production by multinational enterprise (MNEs), including by those from the E20. A push for greater economic resilience on top of the technology revolution, growing nationalism and sustainability imperative will drive such a global transformation, and exerts far-reaching impact on the emerging markets. All this will pose significant challenges and opportunities for firms and states of the emerging economies, calling for a new generation of investment-development strategies.

7.1. Introduction

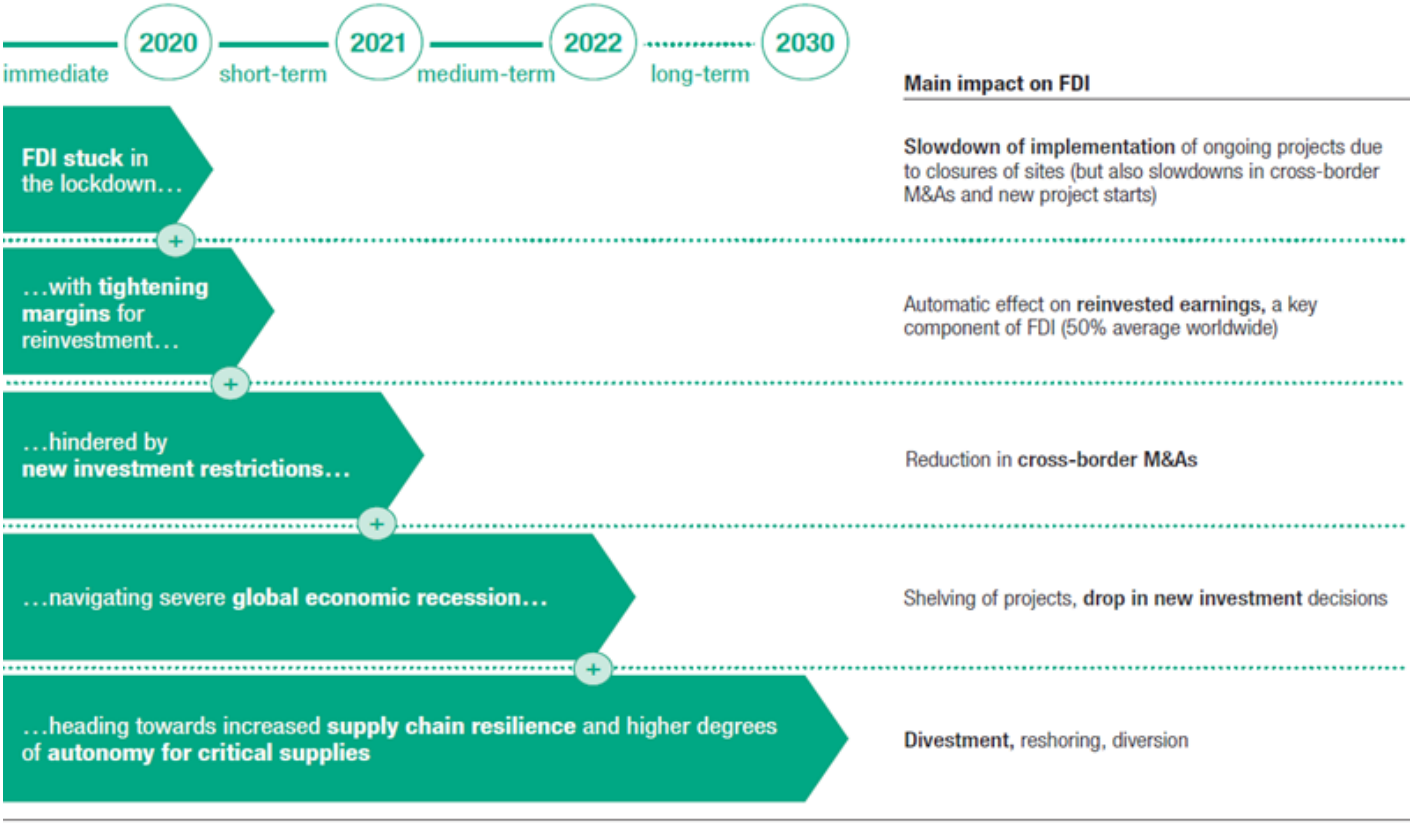
COVID-19 is a gamechanger for international production in the years to come. But it is not the only one. International trade, investment, and global value chains (GVCs) were already entering a period of transformation as a result of three "megatrends" contributing to the slowdown of international production. First, technology and the new industrial revolution (NIR) applied in supply chains are reshaping the configuration of international production networks. Second, global economic governance trends are reflecting a shift away from multilateral cooperation towards regional and bilateral solutions and increased protectionism. Third, as MNEs adopt a broad range of sustainability measures in their global operations, they will have important implications for international production networks. These drivers will drastically alter MNEs modes of operation and global trade and investment landscape, including that of the emerging markets. The chapter will examine how these trends will impact foreign direct investment (FDI), GVCs and international production in the short and longer term, particularly in emerging markets.

7.2. Short-term impact by the pandemic: Prospects for FDI

A. Global prospects

The pandemic is a supply, demand, and policy shock for FDI. It has short-, medium-, and long-term effects (Figure 7.1). The lockdown measures are slowing down existing investment projects. The prospect of a deep global recession will lead MNEs to re-assess new projects. New policy measures taken during the crisis include both investment promotion and investment restrictions. Longer term, investment flows will slowly recover, led by GVCs restructuring for resilience, replenishment of capital stock and recovery of the global economy.

Figure 7.1. Impact of the pandemic on FDI: transmission mechanisms.

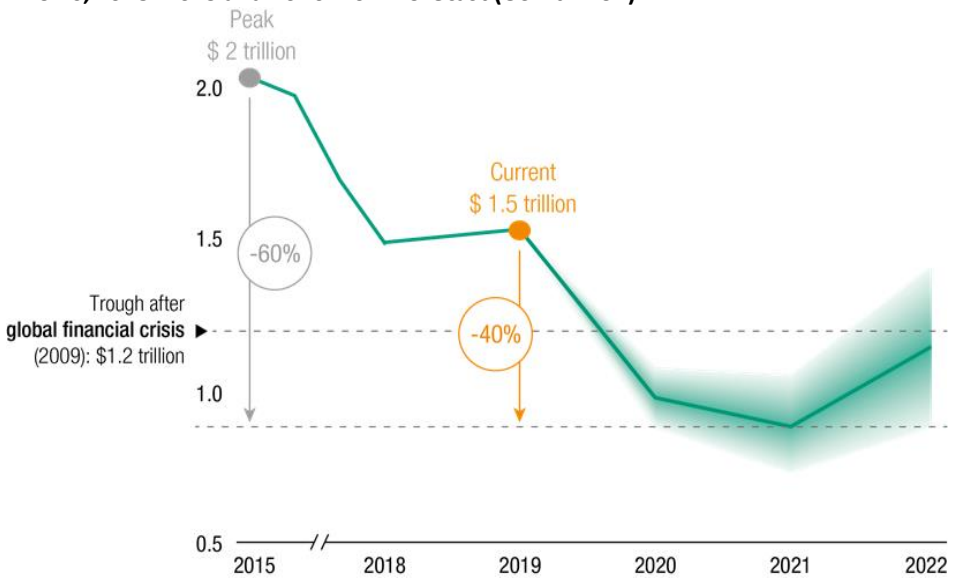


Source: World Investment Report 2020, UNCTAD.

Early indicators confirm the immediate severity of the impact. Both new greenfield investment project announcements and cross-border M&As are expected to drop by more than 50 per cent in the first half of 2020. MNE profit alerts are an early warning sign. The top 5,000 MNEs worldwide, which account for most of global FDI, have seen expected earnings for the year revised down by 40 per cent on average, with some industries plunging into losses. Lower profits will hurt reinvested earnings, which account for more than 50 per cent of FDI on average.

FDI prospects for 2020–2021 are bleak. The COVID-19 crisis will cause a dramatic fall in FDI. According to UNCTAD, Global FDI flows are forecast to decrease by up to 40 per cent in 2020, from their 2019 value of USD1.54 trillion (Figure 7.2). This would bring global FDI below USD1 trillion for the first time since 2005. FDI is projected to decrease by a further 5 to 10 per cent in 2021 and to initiate a recovery in 2022. A rebound, with FDI reverting to the pre-COVID underlying trend in 2022, is possible, but only at the upper bound of expectations.

Figure 7.2. Global FDI inflows, 2015–2019 and 2020–2022 forecast (USD trillion).



Source: World Investment Report 2020, UNCTAD.

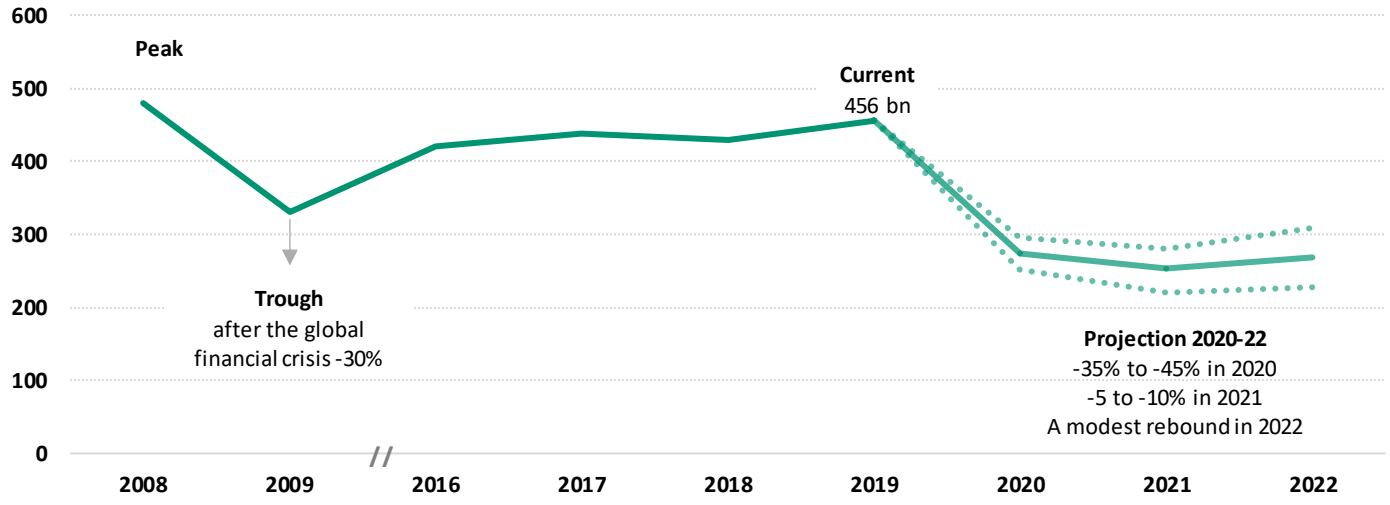
B. Prospects for Emerging markets

The impact, though severe everywhere, varies by region. Emerging 20 are expected to see the biggest fall in FDI. The authors estimated that the FDI flows to Emerging 20 are expected to decline by 35-45%, which is larger than the global average (Figure 7.3). The authors' assessment on the prospects for Emerging 20 is based on two major factors that impact FDI flows significantly.

First, the Emerging 20 together accounts for the lion's share of FDI flows into developing countries and economies in transition – making up some 60-70% of flows annually. UNCTAD forecast model projects a decline in FDI flows to developed economies between -25% to 40% and to developing economies between -30% to -45%: developing Asia (-30 to 45%), Latin America and Caribbean (-40% to -55%) and Africa (-25% to -40%).

Second, the economies of the Emerging 20 are heavily dependent on global value chains or extractive industries, or both, which have been drastically affected by the COVID-19 crisis. The disruptions of the GVCs both in manufacturing and services, as well as the sharp decline of commodity prices will weigh heavily on FDI flows into the Emerging 20 in the short and medium term. A modest recovery will be driven by Asian emerging markets but weighed by those in Africa and Latin America (Figure 7.3).

Figure 7.3. FDI inflows to Emerging 20, 2008–2019 and 2020–2022 forecast (USD billion).

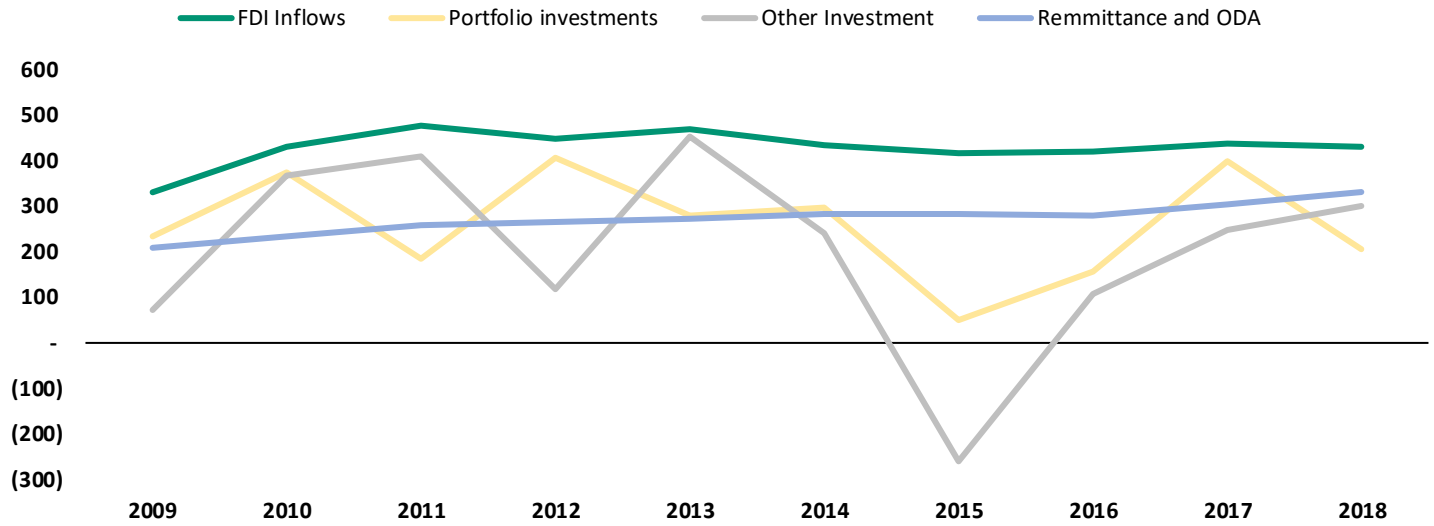


Source: Authors, based on UNCTAD FDI database.

Beyond 2020, the authors expect that some Emerging 20 (particularly Asian emerging markets) are better positioned to have an earlier and faster recovery, leading the global FDI recovery. This is mainly due to their dynamic business sectors and effective policy response to the pandemic. There is, however, a downside risk from sluggish export growth prospects in Asia that strongly correlates with investment growth.[45] For others, such as those in Africa, Latin America and economies in transition, recovery may lag behind the global FDI recovery – as higher downside risks are generated by commodity price shocks and political risks.

Despite the drastic decline, FDI continues to be an important source of external finance for the productive sectors of the Emerging 20 (Figure 7.4) and plays an important role in economic development. This can be demonstrated by the significant share of FDI flows and stock in the gross fixed capital formation and GDP respectively (Figure 7.5 a, Figure 7.5 b).

Figure 7.4. Sources of external finance in Emerging 20, 2009-2018 (USD bn).



Note: FDI directional, ODA data excluding Korea, Poland, Russia, and Saudi Arabia.
Source: IMF, OECD, World Bank, UNCTAD.

Figure 7.5 a. FDI as a share of gross fixed capital formation (GFCF) in Emerging 20, 2005-2018 (per cent).

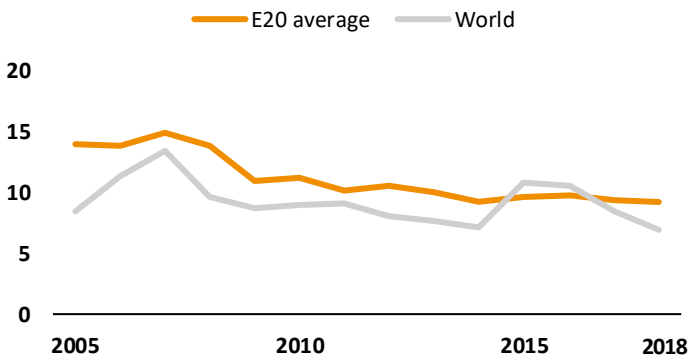
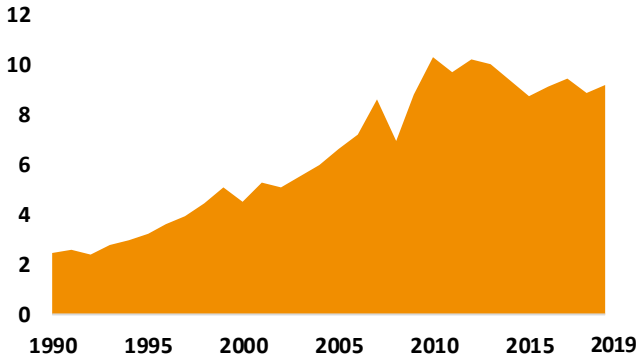


Figure 7.5 b. FDI as a share of GDP in Emerging 20, 1990-2019 (per cent).



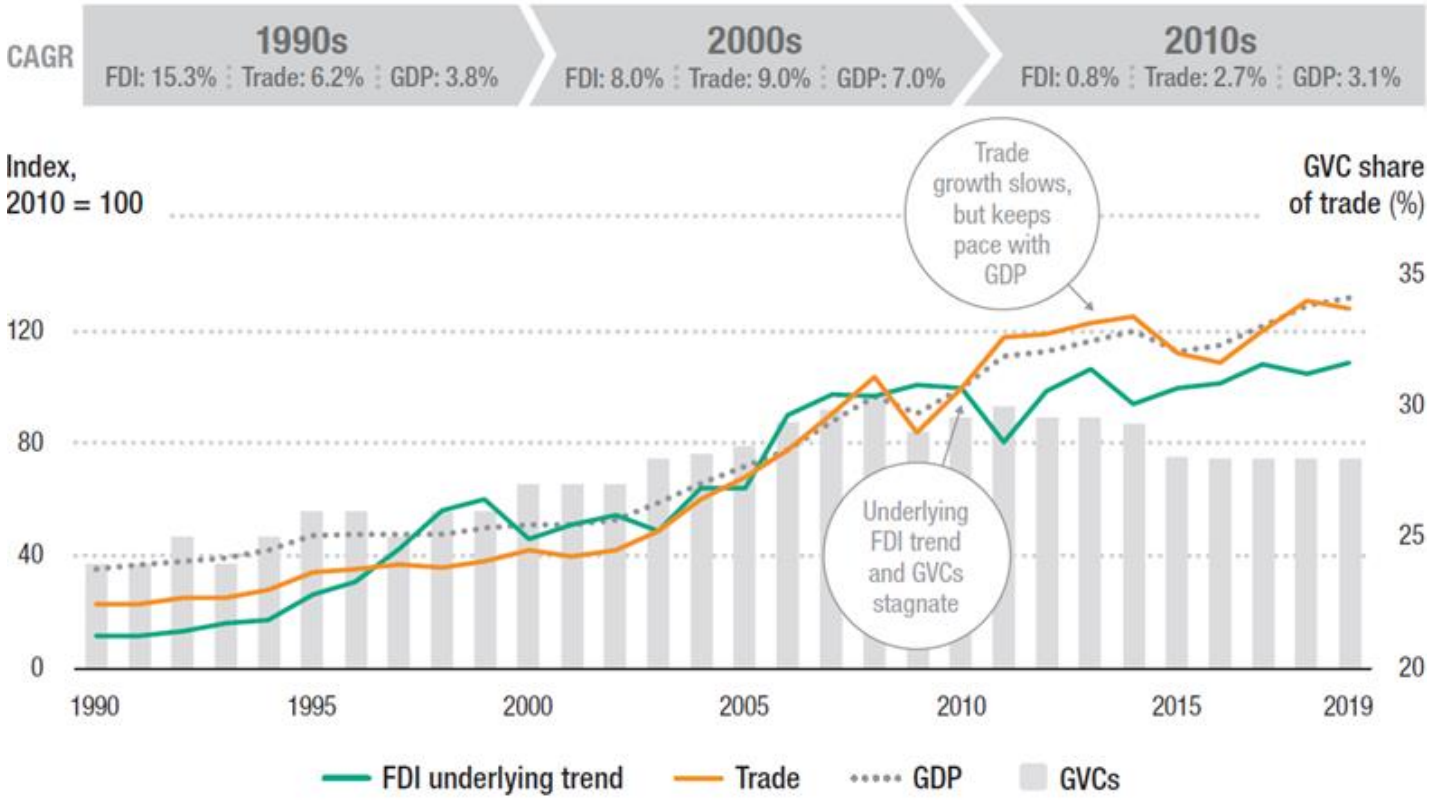
Source: World Investment Report 2020, UNCTAD.

[45] World Bank (2020)

7.3. Long-term impact by GVC transformation: New strategies for a new landscape

As observed by the UNCTAD *World Investment Report,* over the past 30 years, international production saw two decades of rapid growth followed by one of stagnation. In the 2010s, flows of cross-border investment in physical productive assets stopped growing, the expansion of trade slowed down and GVC trade declined (Figure 7.6).

Figure 7.6. The long-term trend of international production.
(FDI, trade and GDP indexed, 2010 = 100; GVCs per cent)



Note: Trade is global exports of goods and services. GVC share of trade is proxied by the share of foreign value added in exports, based on the UNCTAD-Eora GVC database (Casella et al., 2019). The underlying FDI trend is an UNCTAD indicator capturing the long-term dynamics of FDI by netting out fluctuations driven by one-off transactions and volatile financial flows.
Source: World Investment Report 2020, UNCTAD.

The 2010s were only the quiet before the storm. The crisis caused by the COVID-19 pandemic arrives on top of existing challenges to the system of international production arising from the new industrial revolution, growing economic nationalism and the sustainability imperative (Figure 7.7). The decade to 2030 is likely to prove a decade of transformation for international production (UNCTAD 2020).

Figure 7.7. Megatrends shaping the future of international production.

	Trends	Key elements
Technology/ New Industrial Revolution	• Advanced robotics and AI • Digitalization in the supply chain • Additive manufacturing (3D printing)	• Industrial automation, AI-enabled systems ("white collar" robots) • Platforms, cloud, IoT, blockchain • Distributed manufacturing, mass customization, commodification of production
Policy and economic governance	• More interventionism in national policies • More protectionism in trade and investment • More regional, bilateral and ad hoc economic cooperation	• Industrial policies, competition policy, fiscal policy • Tariffs and non-tariff measures, shielding of strategic/sensitive industries • Trade deals among select groups and on common-ground issues
Sustainability	• Sustainability policies and regulations • Market-driven changes in products and processes • Physical supply chain impacts	• Major green plans (and varying implementation timelines), carbon border adjustments • Increased reputational risks and demand for sustainably produced goods and services • Supply chain resilience measures, changing sources of agricultural inputs

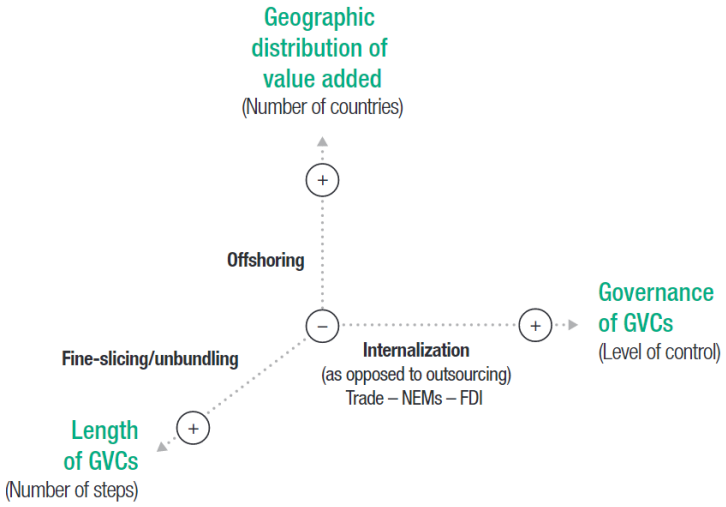
Source: World Investment Report 2020, UNCTAD.

A. Trajectories for the decade of transformation

UNCTAD's World Investment Report 2020 developed an analytical framework to assess the prospects for international production and GVCs that helps explain how the three megatrends mentioned above will play out in three dimensions via four trajectories across four industry groupings.

Trade and investment trends unfold in three key dimensions of international production: the degree of fragmentation and the length of value chains, the geographical spread of value added, and the governance choices of MNEs that determine the prevalence of arm's length trade vs FDI (Figure 7.8). The length of a GVC indicates the fragmentation of a production process and is commonly measured by value added decomposition. A fundamental determinant of length is the modularity of a particular industry, i.e. the degree to which the production process can be sliced up into distinct and discrete steps. Geographic distribution of value ad ded reflects the global allocation of value added and it is driven largely by transportation costs and opportunities to capitalize on labor cost and tax arbitrage, as well as favorable regulatory regimes. Governance of GVCs are fundamentally about the degree of con trol an MNE wish to exercise over their production networks. It indicates the degree to which an industry relies on internalized production (by MNEs through foreign affiliates) versus trade (arm's-length transaction), or through non-equity modes of production. Governance choice is influenced by the complexity of information in the production process; the extent to which the complex information can be transmitted efficiently, and the capabilities of suppliers to meet the technical product requirements (Bolwijn et al, 2018).

Figure 7.8. Key dimensions of international production.

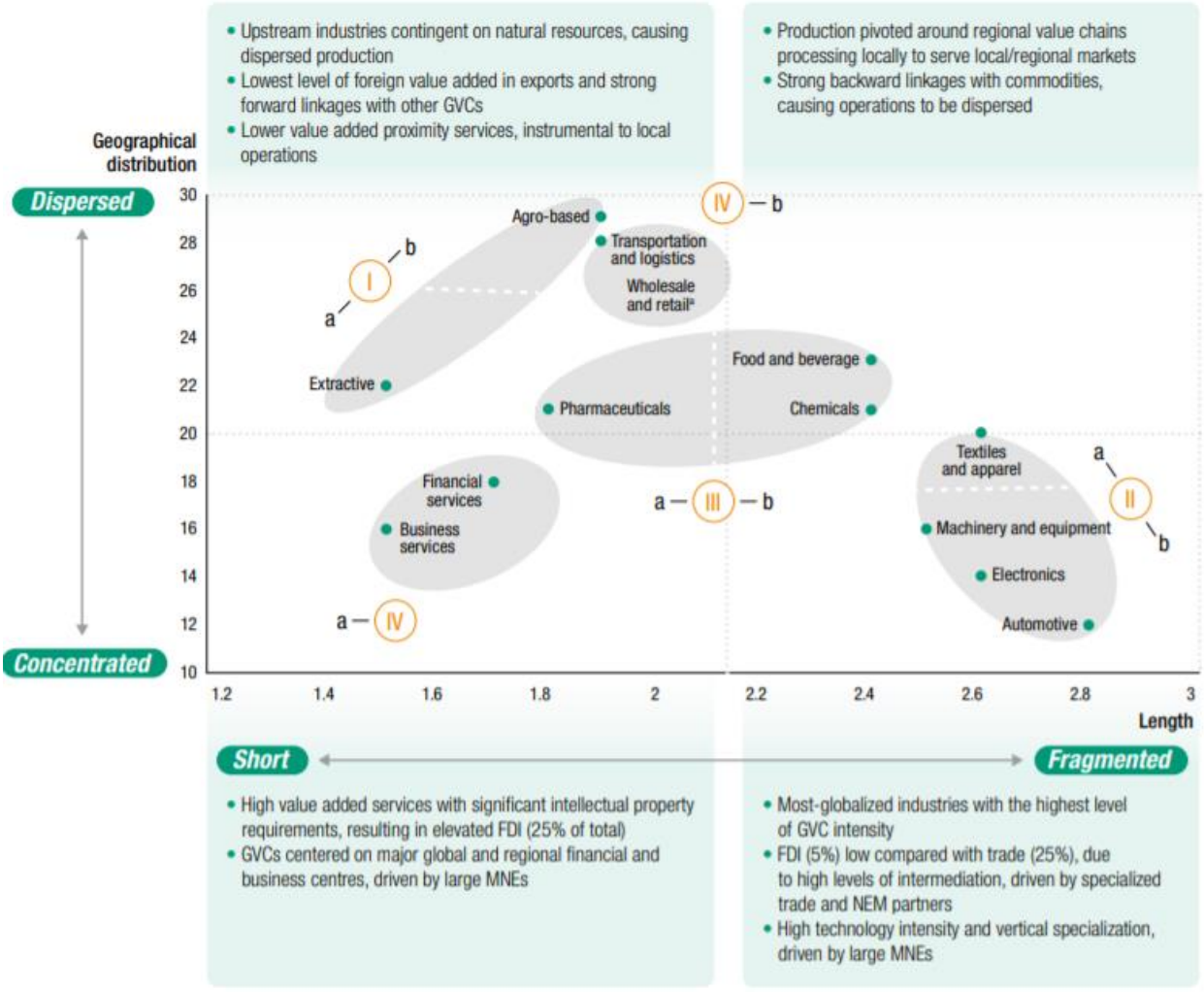


Source: World Investment Report 2020, UNCTAD.

Through these dimensions, several archetypical configurations can be identified (UNCTAD, 2020). They cover four industry groupings that, together, account for the lion's share of global trade and investment. They include capital- and labor-intensive industries in the primary sector; high- and low-tech GVC-intensive industries; geographically dispersed processing and hub-and-spoke industries; and high and lower value-added services industries (Figure 7.9). Though the typology simplifies significant differences within industries that arise from market segment, value chain segment and idiosyncratic firm strategies, understanding where an industry fits can be helpful to understand the transformation path of value chains within a particular industry.

To illustrate, the automotive industry is highly GVC intensive, with complex networks of original equipment manufacturers and suppliers in many locations. An internal combustion engine has on average 2,000 moving parts with suppliers located in 20 to 50 countries. With technology advancement in production and the push for electronic vehicles (the phasing out of internal combustion engine cars), the geographical spread of value chains in the automotive industry is set to shrink. Electronic vehicles supply chains have less parts, with an average 20 moving parts, and involving fewer suppliers, pushing value add to concentrate around battery producers and software providers. The implication for investment is that countries like emerging economies not integrated in higher-technology and digital GVCs may lose the GVC slice they have today.

Figure 7.9. Length and geographical distribution of international production and key archetypes.



Source: World Investment Report 2020, UNCTAD.

The effects of the technology, policy and sustainability trends on international production are multifaceted. They are at times mutually reinforcing, but occasionally push in opposite directions and they will play out differently across industries and geographies.

Depending on the starting point of individual industries – their archetypical international production configurations – they will tend to favor one of four trajectories.

1) *Reshoring* will lead to shorter, less fragmented value chains and a higher geographical concentration of value added. It will primarily affect higher-technology GVC-intensive industries. The implications of this trajectory include increased divestment and a shrinking pool of efficiency-seeking FDI.
2) *Diversification* will lead to a wider distribution of economic activities. It will primarily affect services and GVC-intensive manufacturing industries. This trajectory will increase opportunities for new entrants (economies and firms) to participate in GVCs, but its reliance on supply chain digitalization will cause those GVCs to be more loosely governed, platform-based and asset-light.
3) *Regionalization* will reduce the physical length but not the fragmentation of supply chains. The geographical distribution of value added will increase. This trajectory will affect regional processing industries, some GVC-intensive industries and even the primary sector.
4) *Replication* will lead to shorter value chains and a re-bundling of production stages. It will lead to more geographically distributed activities, but more concentrated value added. It will be especially relevant for hub-and-spoke and regional processing industries.

Although the different trajectories show that the expected transformation of international production is not unidirectional, they imply a shrinking pool of investment in physical assets, pressure on value capture from GVC activities, and changes in drivers and determinants of international production that will often negatively affect the chances of developing economies to attract MNEs' operations (Zhan et al, 2020). The overall direction of the transformation, which may vary across industries, in the decade ahead can be envisaged as follows:

1) Shorter and less fragmented value chains.
2) More concentrated value added.
3) More platform-driven and asset-light value chain governance.
4) A shift from global to regional and sub-regional value chains.
5) Downward pressure on global efficiency-seeking FDI in favor of regional market-seeking FDI.
6) Downward pressure on global trade in intermediate goods, less on trade in final products.
7) A shift in some industries from large-scale investment to smaller-scale distributed manufacturing.
8) Continued growth and fragmentation in services value chains.
9) Resilience and national security concerns as key drivers of GVC diversification.
10) A shift from GVC-investment to cross-border investment in infrastructure, domestic services and in the green and blue economies driven by the sustainability imperative.

B. Implications for Emerging markets

The trends and policy issues discussed will pose huge challenges and opportunities for firms and emerging markets governments, calling for a new generation of investment-development strategies. Policymakers in the emerging markets need to prepare for the challenges that the transformation of international production will bring and be ready to capture the opportunities.

Challenges

- Increased divestment, relocations, and investment diversion, and a shrinking pool of efficiency-seeking investment will intensify competition for FDI.

- Value capture in GVCs and development based on vertical specialization will become more difficult.
- Industrial infrastructure built for a world of GVCs will see diminishing returns.
- Changes in locational determinants of investment will often negatively affect the chances of emerging markets to attract MNE operations.

Opportunities

- A great potential for attracting investors looking to diversify supply bases and building redundancy and resilience.
- The pool of regional market-seeking investment will increase.
- Shorter value chains will bring more investment in distributed manufacturing and final-goods production with broader industrial capacity building and clustering.
- Digital infrastructure and platforms will enable new applications and services and improve bottom-up access to GVCs.
- The sustainability imperative will lead to more green and blue investment and value chains in emerging markets.

The shrinking pool of efficiency-seeking investment will make it more difficult for emerging markets to increase participation in GVCs. Some may even need to cope with premature de-industrialization. Reliance on labor cost competitiveness has lost its effectiveness to attract and retain FDI in emerging markets, making technological and skills upgrading, along with new industrial policies, indispensable for participation in modern GVCs. The experience of Mexico's electronic industry in Guadalajara provides an example of how the appeal of labor-cost advantage in attracting and retaining FDI has weakened when elements of social capital or a strong regional innovation network are lacking.[46]

As new investments flow more into technologically advanced sectors and production processes, services and innovation, modern industrial policies need to support concentration and clustering of know-how and technology in capital- and innovation-intensive industries. In addition, countries need to catch up with the adoption of New Industrial Revolution in manufacturing. All this could enable countries to competitively integrate modular value chains to enhance value capture in the international production pie.

The digital economy and artificial intelligence (AI) present an opportunity for emerging markets. They have the potential to improve access to markets for SMEs; building up new economic activities in app development, local content development or digital services for export; governance and leapfrogging in industries ranging from telecommunication to financial services. Additionally, for some Emerging 20 countries, higher degrees of automation can favour information technology (IT) hubs nearby, rather than cost competitive but farther away services or hubs. Poland provides an example of a country ready to capture digital economy related investment opportunities presented by nearshoring trends thanks to its maturing digital ecosystem and abundance of tech talent. In early 2020, Microsoft invested USD1 bn to accelerate innovation and digital transformation in the "Polish Digital Valley". In Europe, Poland along with Russia are among the top performers in AI readiness,[47] making advances in AI policy. In Africa, the proliferation of tech hubs in cities such as Cape Town, Addis Ababa, Kigali, and Nairobi is a positive indication of rapid digital ecosystem growth in the region.

Where GVC integration is high, the pandemic has shed light to the strong interconnectedness of economies and factories within emerging markets. On one hand, supply chain disruption is more contagious, but on the other hand, strong regional value chain network such as that in South East Asia has to a degree serve as a buffer for shocks affecting production. Still, this interconnectedness impacts parts of the chain differently. The pandemic has also heightened the need for resilience: to secure parts of the value chain, add a degree of resilience and diversify supply base. To this end, countries will put a premium on the diversification of trading partners, and MNEs will look to regionalize supply chains. Consequently, this may accelerate the trend towards regionalism, including among some emerging economies.

In the last few years, the regional nature of value chains has intensified in East Asia and North America (Miroudot and Nordström, 2019; Santos Paulino et al., 2019). Building a strong regional value chain, with technologically enhanced clusters of manufacturers and suppliers is a long-term effort and regional cooperation is an important facilitator. In recent years, multilateral

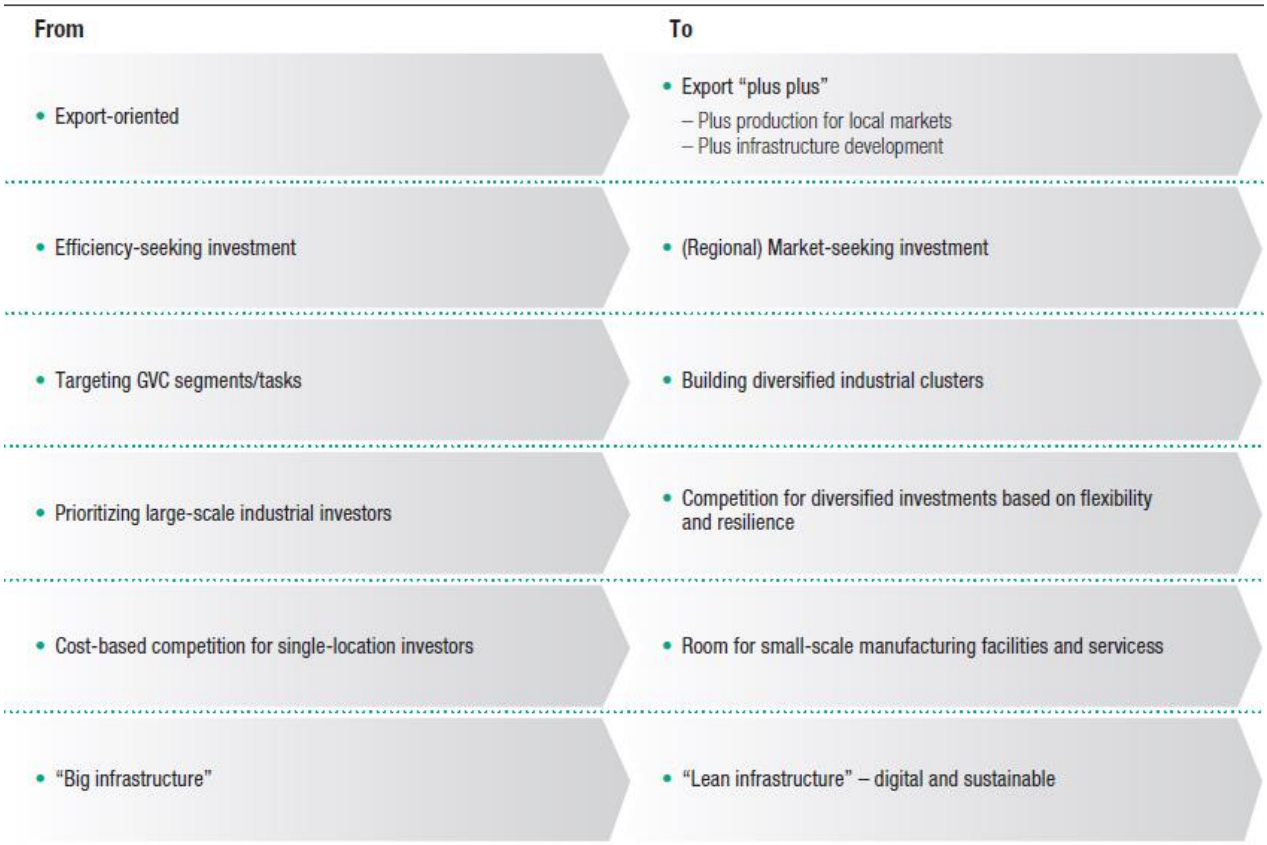
[46] Guillemin Franco, G. M., & Pedroza Zapata, A. R. (2020).
[47] Oxford Insights, AI Readiness Index 2019

rulemaking on trade and trade-related issues has been elusive. The void is being filled by regional and megaregional trade and investment agreements. Prospective agreements could establish some of the world's biggest free trade zones. These include the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, the Regional Comprehensive Economic Partnership and the African Continental Free Trade Area Agreement. Ongoing accession processes could see a boost in interest, and new regional groupings may emerge.

Sustainability imperative will be a bigger consideration and SDG-related investments can help drive emerging markets to enhance resiliency and capture opportunities. The economic consequences of climate change will be unevenly distributed and especially important in developing countries, which combine increasing trade dependency with significant expected damages from climate change. The effects can be particularly dire for the regions that specialize in food and agricultural products, such as the Emerging 20 countries in Africa with low level of diversification in their trade pattern. In traditional extractives sector, the global push to transition towards cleaner energy is changing the nature of cross-border investment in the industry. This will affect markets where oil and gas industry drive FDI such as Nigeria, Saudi Arabia, Egypt, Brazil, Argentina, and Chile. Globally, there will be more opportunities in investment into natural gas and renewables, and into technology and infrastructure to serve the electronic vehicle market (e.g. charging stations in the downstream retail businesses of oil majors). More investment is also expected to go towards carbon neutrality projects (e.g. energy-efficiency services, carbon capture). As they are less tied to geography, this will drive a shift towards less concentrated and regional or local investment in energy generation.

For emerging markets, confronting the challenges and capturing the opportunities requires a change in the GVCs-development path (Figure 7.10). From a focus on export-oriented efficiency-seeking investment in narrowly specialized GVC segments, to a broader export-led strategy that extends to investment in production for regional markets and industrial clustering. From cost-based competition for single-location investors to competition for diversified investments based on flexibility and resilience. And from prioritizing large-scale industrial investors with "Big infrastructure" to making room for small-scale manufacturing facilities and services with "Lean infrastructure".

Figure 7.10. The transformation of international production and the investment-development path.



Source: World Investment Report 2020, UNCTAD.

A new investment policy framework, fit for the next decade of transformation, should therefore incorporate four key components:

1. *Embarking on a new investment-development path.* Shifting strategic policy direction from a GVC-driven, segment-targeted export orientation towards Regional Value Chain-based export expansion, with domestic industrial clustering to build linkages and resilience. In following the new path, emerging economies could balance modern open industrial development policies with built-in national economic security and resilience mechanisms.

2. *Developing a new ecosystem.* Promoting a business environment attractive to new investment activities and conducive to technology dissemination and sustainable development. An important component of the new ecosystem should be the modernization of infrastructure for digital, physical, and institutional connectivity at regional and subregional levels.

3. *Building dynamic productive capacity*. Shifting the focus from narrow specialization to the expansion of the manufacturing base. Strengthening industrial clustering (including cooperatives of micro and SMEs for scale and scope of production) and retooling SEZs and science parks are viable approaches that match with MNE regionalization and diversification strategies. Such approaches can also help emerging markets to foster a resilient and inclusive economy by crowding in domestic micro and SMEs and facilitating backward linkages.

4. *Formulating a new investment promotion strategy.* Adapting investment promotion and facilitation to the new investment-development path. This includes resetting priorities for investment promotion, targeting diverse investment activities and business functions, and facilitating green and digital investors, as well as impact investors, to promote investment in the SDGs.

7.4. Concluding remarks

The global COVID 19 crisis has exerted and will continue to exert dramatic impact on global trade, investment and GVCs. The shorter-term impact was caused by the multiple chocks, i.e. supply, demand and policy. Notwithstanding the high degree of uncertainty and the range of possible trajectories for international production, the general direction of the transformation seems clear. GVCs, trade and investment are heading for a period of high-level of volatility, uncertainty, complexity, and ambiguity (Zhan, 2019). This will present ample challenges and opportunities for emerging markets. The pool of efficiency-seeking and resource-seeking investment will shrink, calling for a degree of rebalancing towards growth, based on domestic and regional demand and on services. Investment opportunities will be more in value-creating projects in infrastructure, agriculture, and services. This calls for resetting investment policy, to ensure that new policies and investment promotion strategies can facilitate the marketing of new sectors, which requires different types of financing with investors that operate in a different policy ecosystem. Finally, Investment with an emphasis on sustainability, in the green economy and the blue economy, as well as in infrastructure, presents great potential for contributing to achieving the Sustainable Development Goals (SDGs).

References

Bolwijn, R., B. Casella and J. Zhan (2018). "International production and the digital economy", in van Tulder, R., A. Verbeke and L. Piscitello. *International Business in the Information and Digital Age (Progress in International Business Research, Vol. 13)*, Emerald Publishing, pp. 39–64,

Bouët, A., Cosnard, L and Laborde, D. (2017) "Measuring Trade Integration in Africa", *Journal of Economic Integration* , December 2017, Vol. 32, No. 4 (December 2017), pp. 937-977 Published by: Center for Economic Integration, Sejong University.

Casella et al., R. Bolwijn, D. Moran and K. Kanemoto (2019). "Improving the analysis of the global value chains: the UNCTAD-Eora database". *Transnational Corporations*, 26(3):115-142.

Guillemin Franco, G. M., & Pedroza Zapata, A. R. (2020). Social Capital and Core Competencies: Enablers Developing Electronic Design Technological Capabilities in Guadalajara, Mexico. *Innovar*, 30(77), 25-38.

Miroudot, S. and H. Nordström (2019). "Made in the world revisited". *EUI Working paper* RSCAS 2019/84.

Oxford Insight, AI Readiness Index 2019, accessed September 2020 at https://www.oxfordinsights.com/ai-readiness2019

Santos-Paulino, A., A. Dicaprio and M. Sokolova (2019). "The development trinity: How regional integration impacts growth, inequality and poverty". *The World Economy, 47(7): 1961-1993.*

UNCTAD (2013). *World Investment Report 2013: Global Value Chains: Investment and Trade for Development, Geneva Switzerland.* New York and Geneva: United Nations.
UNCTAD (2015) *Investment Policy Framework for Sustainable Development*. New York and Geneva: United Nations
UNCTAD (2017). *World Investment Report 2017: Investment and the Digital Economy. New York and*
Geneva: United Nations.
UNCTAD (2018). *World Investment Report 2018: Investment and New Industrial Policies.* New York and Geneva: United Nations.
UNCTAD (2020). *World Investment Report 2020: International Production Beyond the Pandemic.* New York and Geneva: United Nations. https://worldinvestmentreport.unctad.org/
World Bank (2020). *East Asia and Pacific Economic Update*, April 2020 *: East Asia and Pacific in the Time of COVID-19.* Washington, DC: World Bank.
Zhan. J. (2019) "Global investment trends and policies at times of uncertainty", in Sachs L, Johnson L (eds.) *Yearbook on International Investment Law & Policy 2018*. Oxford, United Kingdom: Oxford University Press.
Zhan, J. , R. Bolwijn, B. Casella, A. Santos-Paulino (2020) "GVCs transformation : Overall direction and policy implications". Vox July 2020.

Chapter 8
Mutual Dependence and Power Imbalance: Trade Frictions and Balancing Processes between China and the United States

Limin Chen – Professor, Economics and Management School, Wuhan University (Wuhan, China)
Zhi Qiao – PhD candidate, Economics and Management School, Wuhan University (Wuhan, China)

Executive Summary

Based on the power-dependence theory, this chapter analyzes mutual dependence and power imbalance between China and the United States. Using the latest data from 2018 TiVA database, an empirical analysis for 35 subsectors of China and the U.S. concludes the following: a) the bilateral trade gains of both the US and China increase along with their mutual dependence and drop along with their power imbalance which are measured by the bilateral trade. b) participation in global value chain may weaken the negative correlation between power imbalance and bilateral trade gains.

As the findings suggests, the balancing processes contribute to reductions in trade frictions. Between two highly interdependent countries with severe power imbalance, the party with more dependence should "withdraw" some of its dependence and its counterpart should intentionally "give status" to the deficit party. The moderating effect suggests that when two highly interdependent countries confront the risk of diminishing trade gains due to power imbalance, the country with deep participation in global value chain namely "extension" balancing process will lower the risk.

Ultimately, in the event a country faces fewer trade gains caused by its major trading partner, it should not adopt a protectionism or anti-globalization strategy. On the contrary, it ought to integrate more deeply into the global value chain, which is characterized by widespread trade relations with other countries all over the world.

8.1. Introduction

Specialization within product value chains brings about optimal productivity among firms, but shrouds the flow of key resources in clouds of uncertainty. This increase in interdependence in the global value chains (GVCs) has tracked with the rise in

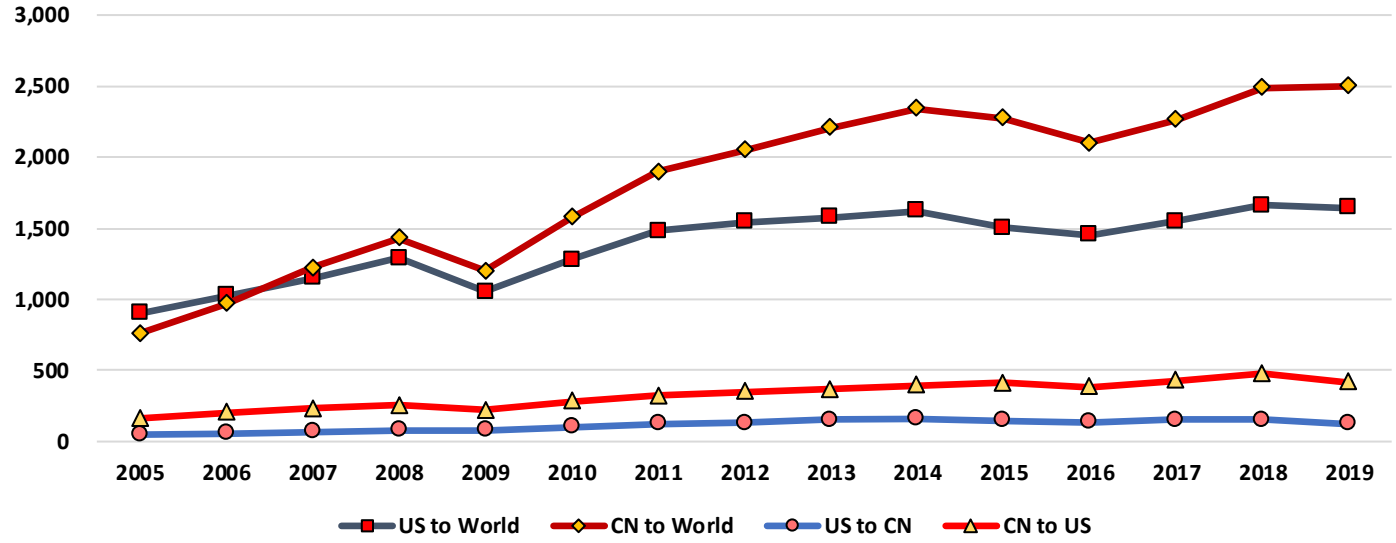
productivity and specialization. Yet, the potential threats of resource constraints now mount, imperiling profit distributions and trade relations.

Due to differences in comparative advantages, developed and developing countries possess key resources at different stages in GVCs, with the former occupying the more technologically advanced end and the latter taking on the more manufacturing-intensive end. Both parties claim the other benefits more from GVCs in terms of profit (Baldwin, 2016; UNCTAD, 2013).

WTO data suggests that in recent years China and the United States rank consistently among the largest foreign recipients and providers across GVCs. We select China and the United States as our research object for they are notable representatives of developed and developing markets. We investigate their interdependence at the industry-level, all while exploring potential reductions in the loss of trade gains caused by power imbalance and trade friction.

We present a basic understanding of export volumes of China and the United States based on global trade data released by WTO, GACC, and OECD. Figure 8.1, for instance, lists exports from China and the United States to the world and to each other. The data trend indicates that while exports from China and the United States rose overall, with the exceptions of 2008-2009 and 2014-2016, those from China to the world proved larger relative to those from the United States. Not only would China maintain a trade surplus with the United States, it would also gradually expand the value of its trade surplus. Only, by 2019, the trendline would reverse, as trade friction between China and the United States gave way to a decline in exports across the board.

Figure 8.1. Merchandise exports of U.S. and China during 2005-2019 (billion US dollar)



Sources: Authors with data released by WTO and GACC, accessed September 2020.

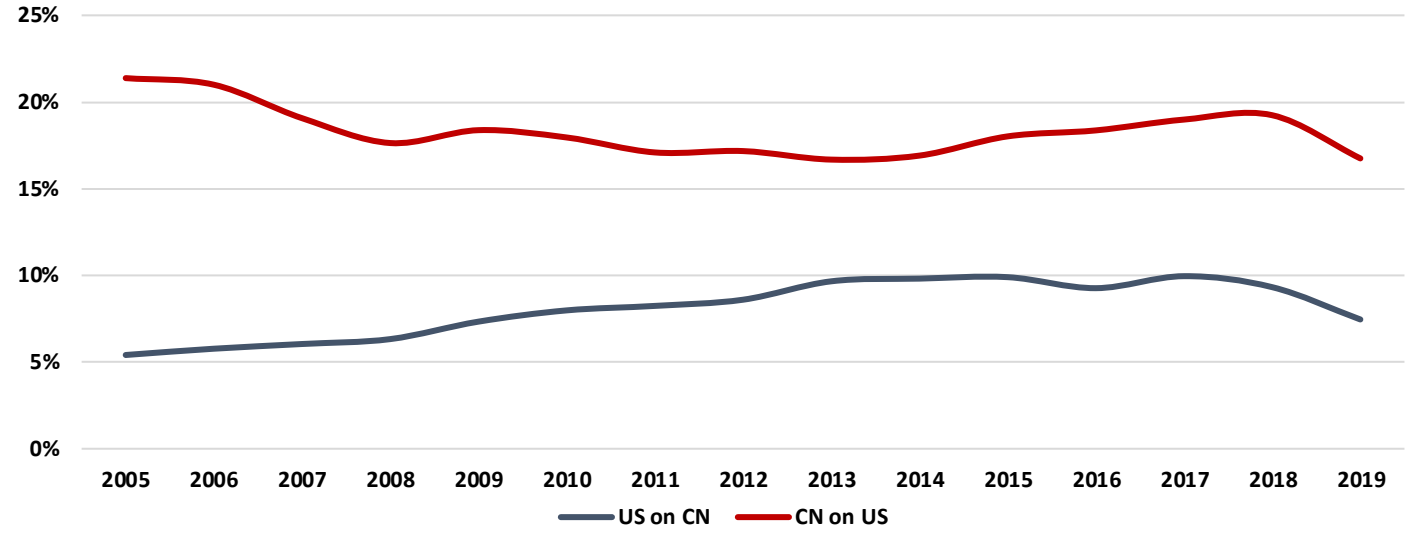
In a bilateral trade relation, unbalanced dependence contributes to the instability of transnational chains of supply and demand. So over-dependence on exports to, or imports from, a particular country can be the difference between an obvious advantage to a potential threat. Figures from Figure 8.2 to Figure 8.4 respectively suggest export and import dependence between China and the United States measured by the ratio of export and import volume from country A to country B and from country A to world.

Each country was the most important trade partner of the other. While China was able to balance the trade the other had a huge trade deficit of USD375,000 million in 2019. China fared as a major importer and exporter to the United States, just as the United States stood as a major importer and exporter to China, but their dependency on the other looms large. The dependence of the latter on the former stands like a dam, while dependence of the former on latter flows like a wave. Whether in export dependence or import dependence, the combination of the dam and wave long fell out of balance. For instance, in export dependence, the dam held much higher than the wave, while in import dependence, the wave crested much higher than the dam.

These metaphors stand for the merchandise trade relation between China and the United States, with the former proving a higher export-dependence actor, while the latter presenting as a higher import-dependence actor. This result is consistent with the

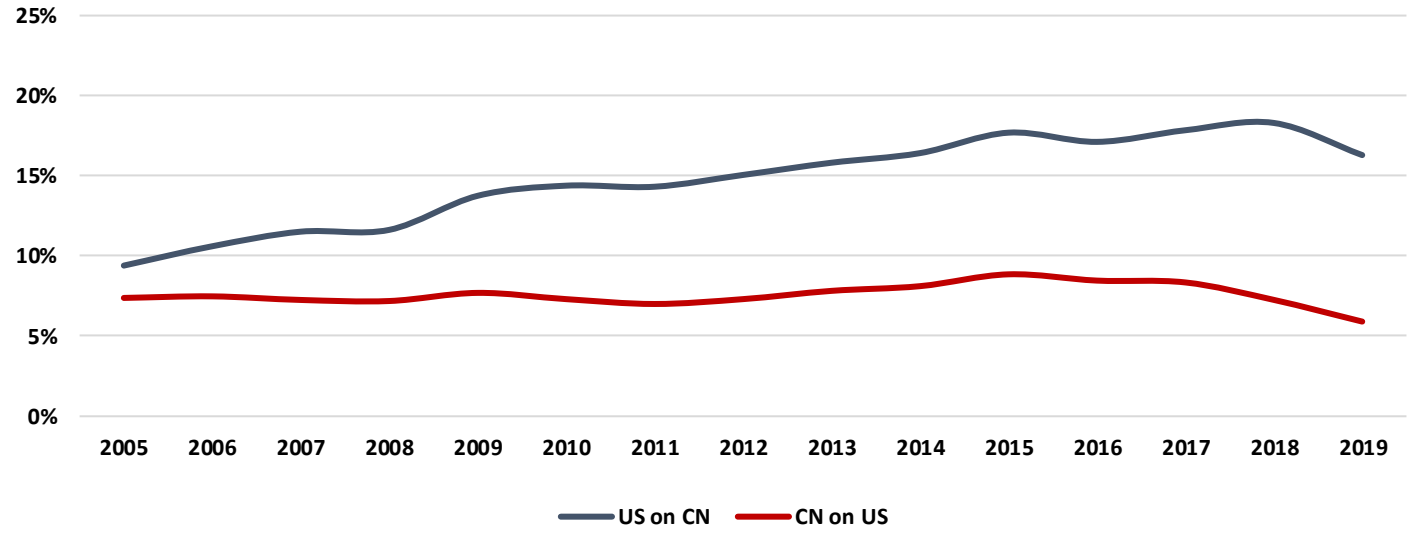
common saying "China is a large exporter while the United States is a large importer." Both are major contributors to the other, but instability in demand and supply chains festers.

Figure 8.2. Export dependence of U.S. and China during 2005-2019.



Sources: Authors with data released by WTO and GACC, accessed September 2020.

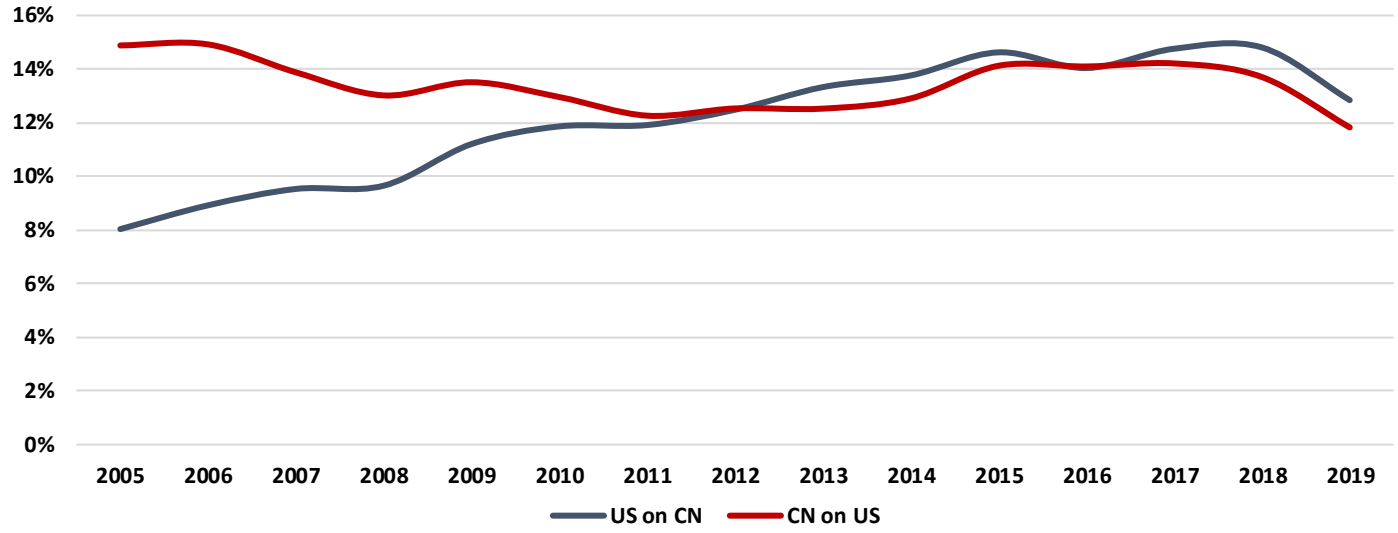
Figure 8.3. Import dependence of U.S. and China during 2005-2019.



Sources: Authors with data released by WTO and GACC, accessed September 2020.

In one respect the dam and wave still match (Figure 8.4). While China relies on demand from the United States, the United States relies on supply from China, something of a mutual constraint on supply and demand chains and cause for a stable partnership. We calculate volume of trade based on the volume of exports and imports, measuring the trade dependence by dividing trade volume from country A to country B with trade volume from country A to the world. We find that from 2005 to 2019, the trade dependence of China on the United States fell at first, followed by an uptick, with the trade dependence of the United States on China only increasing. Until the trade friction, the gap in trade dependency between China and the United States subsided substantially.

Figure 8.4. Trade dependence of U.S. and China during 2005-2019.



Sources: Authors with data released by WTO and GACC, accessed September 2020.

Figures from Figure 8.1 to Figure 8.4 indicate that a trade surplus is not an absolute advantage. Even as China enjoyed an obvious advantage in terms of exports, it proved more dependent on trade with the United States than the other way around.

The power-dependence theory by Emerson (1962) provides a profound and unique perspective to investigate trade interdependence between countries. Emerson's paper contended that power should be treated as a property of social relation rather than an attribute of an actor. It is meaningless to express "an actor has power", as there is no transitive power. Person A may assume power over B, but bear no influence over C at all. Thus, it is more precise to inquire "over whom does A hold power?" Secondly, he raised a formulation to express the opposite relation between power and dependence as $P_{ab}=D_{ba}$, meaning the power of A over B is equal to the dependence of B on A. Finally, he established a theoretical basis for identifying two dimensions of interdependence as mutual dependence and power imbalance, putting forward a means to rebalance imbalance.

Based on the framework of power-dependence theory, this paper builds on Emerson (1962), Casciaro and Piskorski (2005), Gulati and Sytch (2007), compressing interdependence into two dimensions: 1) mutual dependence, the sum of dependencies between two countries, and 2) power imbalance, dependency differentials between two countries. It adopts an empirical analysis of the following two questions: (1) how do mutual dependence and power imbalance affect the trade gains of China and the United States; and, (2) how does the penetration of China and the United States with the rest of the world (their GVC participation) influence the relation between interdependence and trade gains?

8.2. Theory and hypotheses

A. Trade dependence between countries on key resources

Product value will be measured based on key resources,[48] whether upstream or downstream in the value chain. Trade dependence will be understood as the dependence of one country on the key resources of the other, their international specialization based on comparative advantage, the expansion of their range of products and services, and their gains in productivity. When the key resource is an intermediate product, it actually means products and services have comparative advantage.

Besides, the key resource can also come from market demand, such as the dependence of ASML in Netherlands on the key resource from other countries, ASML not only depends on upstream manufacturers like light source parts from America, camera lens devices from Germany to provide cutting-edge technical support, but also depends on downstream manufacturers like TSMC, Intel,

[48] "Key resources" are shaped by the exchange of comparative advantages. The essence of comparative advantage in international trade means lower opportunity cost of one product produced by one country (Krugman & Obstfeld, 2005).

Samsung to maintain large R&D investments. Therefore, trade dependence both includes import dependence and export dependence, we view the dependence of one country on intermediate product of the other as import dependence, the dependence of one country on market demand of the other as export dependence.

B. Correlation between mutual dependence and trade gains

Mutual dependence between two countries refers to the sum of dependencies on each other's different key resources in the same industry. Each country's dependence speaks to the dependence of one country's total industry on key resources from another country's specific industry, which measures country-specific industry participation in international specialization with different factor advantage.

Mutual dependence on trade gains generates greater dependence between two actors, motivation for reducing uncertainty, and easier reform—restructuring bilateral dependencies through M&A, joint venture, boards of directors, political action, etc (Hillman, Withers, & Collins, 2009). Based on the logic of power-dependence relation, when mutual dependence between two countries ticks up, industrial comparative advantage between them appears to be more prominent, supply and demand in factor market match better, contributing to optimal resource price or transaction costs and increasing the risk of uncertainty in the flow of key resources from the external environment—hence, more input and output connections through equity or non-equity cooperation and international specialization.

Still, mutual dependence can improve the quality of the relation, and sequentially enhance the value creation potential of the relation (Gulati & Sytch, 2007). Based on the logic of relational embeddedness, high-mutual-dependence implicates acceptance of the counterparts' industrial specialization, enabling responsiveness to risk in bilateral trade environment and resistance to external shock threatening to undermine trade relations. For example, Apple Company is highly depends on the manufacturing efficiency of China. Though the United States encourages its manufacturers to return to America, Apple favors closer ties with China's Original Equipment Manufacturers (OEM). According to the data provided by Apple, during 2015-2019, its assembly plants in Foxconn have grown from nineteen to twenty-nine, and from eight to twelve in Pegatron, lending a positive correlation between mutual dependence and trade gains, the hypothesis we turn to.

H1: The greater the mutual dependence between two countries on some specific industry, the higher bilateral trade gains they will acquire.

C. Correlation between power imbalance and trade gains

Power imbalance between two countries refers to the differential dependencies on key resources in the same industry, meaning an unbalanced trade dependence. Relative to its counterpart, the *higher*-dependence actor faces further uncertainty in the flow of key resources from its external environment and stands more motivated to cooperate. Conversely, the higher-power actor is poised to dominate relations through threats of withdrawal from transactions, benefiting from heftier leverage (Gulati & Sytch, 2007).

As a country's power imbalance rises, on account of power relatively diminishing or dependence relatively enhancing, its place of comparative advantage, and its ability to cope with changes fade, weakening its profits and specialization in GVC. For example, in 2018, the Department of Commerce of the United States announced that it would block the supply of sensitive products such as chips for ZTE Corporation of China in seven years. Due to high dependence on the supply of those products, replacing key resources from the United States through a third country is not easy for ZTE. Ultimately, it would pay huge fines and reshuffle its leadership team, lending a negative correlation between power imbalance and trade gains, our next hypothesis.

H2: The greater the power imbalance between two countries in a specific industry, the lower the trade gains will be for the more dependent party.

D. Influence in global value chain participation

In an unbalanced, power-dependent relation, the uncertainty in the flow of key resources to the more dependent party stands as a major challenge. According to Emerson, a country can reduce uncertainty through four types of balancing operations: with drawing motivational investment, cultivating alternative players, increasing counterparty's motivational investment, and coalition-building with the counterpart's alternative players.

GVC participation can play a balancing role in power-dependence relation between two countries. According to prior studies (Baldwin & Yan, 2014; Frankel & Romer, 1999; Humphrey & Schmitz, 2002; Sharma &Mishra,2015), GVC participation can involve a country in a bigger market, accelerating technological upgrade through technology spillover, spatial spillover , as well as intermediate, big market and competition effects. Furthermore, the higher the relative GVC participation of a country's industry, the more likely the trade friction it suffers spreads through price transmission in multinational input and output networks.

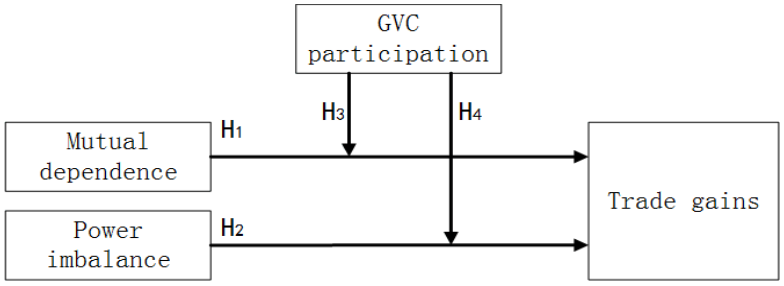
As GVC participation grows deeper, uncertainty in the flow of key resources from the external environment will drop, dispelling choice constraint for cooperation partners on industry *i* by country A, and further reducing the growing range of trade gains of country A's industry i along with growing mutual dependence. At the same time, greater participation enhances bargaining ability of country A's industry i, its specialization with country B, further reducing the diminishing range of trade gains of country A's industry *i* along with growing power imbalance.

For example, Huawei Company, the world's second largest smartphone seller, faced a sales ban released by the United States. It received support from many partners, lobbying the United States to remove restrictions, even increasing supplies to Huawei in a short time. As a result, we hypothesize a negative moderating effect of GVC participation on correlation between mutual dependence and trade gains, and a positive moderating effect of GVC participation on correlation between power imbalance and trade gains.

H3: GVC participation by a country will weaken the positive correlation between its mutual dependence and trade gains.

H4: GVC participation by a country will weaken the negative correlation between its power imbalance and trade gains.

Figure 8.5. Research framework



Sources: Authors with data released by WTO and GACC, accessed September 2020.

8.3. Method

Our data strems primarly from the 2018 TiVA database, newly released by OECD-WTO, tracking international specialization from 2005 to 2015[49]. We select thirty-five industries from the TiVA database spanning agriculture, manufacturing and service sectors, amounting to 385 industry-year observations for both China and the United States.

Dependent variable: trade gains. We draw on value-added exports to measure trade gains, a reflection of true profits from GVC. For exports and final demand per country, theTiVA database is divided by specific industry, recording the origins of val ue added in gross exports by source country and industry, as well as in final demand by source country and industry.

Independent variables: mutual dependence & Power imbalance. Emerson (1962) first specified the basis for dependence, "the dependence of actor A upon actor B is (1) directly proportional to A's motivational investment in goals mediate d by B, and (2) inversely proportional to the availability of those goals to A outside of the A-B relation". Therefore, measuring dependence, is generally to measure the significance and alternatives of the needed resources.

According to Burt, 1983; Casciaro & Piskorski, 2005; Finkelstein, 1997, dependence between firms is measured by purchase and sales ratios between two industries within one country, and domestic market concentration ratios of the corresponding ind ustry. In a transnational context, dependence between countries is measured by purchase and sales ratios between two countries based on

[49] Data source: https://stats.oecd.org

each other's key resources and global market concentration ratios. Mutual dependence in this paper refers to the gross sum of dependencies between two countries, just as mutual dependence between China and the United States equals the sum of dependencies (of Chinese industries on American industry *i* and American industries on Chinese industry *i*).

Power imbalance shall refer to dependence of country A on country B's industry *i* minus dependence of country B on country A's industry *i*.

Moderator: GVC participation. GVC participation in this paper is measured by vertical specialization. In fact, Hummels, Ishii & Yi (2001), set forth a conceptual framework for vertical specialization (VS) and improved by Wang, Powers & Wei (2009). We borrow their conception with the sum of ratios of foreign-value added and indirect domestic-value added to total export to measure GVC participation.

Control variables: Three control variables are chosen in this paper: (1) production capacity, its proxy variable (gross output from the country to world at an industry-level), in logarithmic form, also standardized in subsequent regression where gross output is greater than trade gains; (2) the rate of capacity utilization it is measured by the ratio of the output of an industry in a country to the input in this industry by the relevant industry from the whole world and (3) export policy orientation: measured by the ratio of foreign intermediates inputs in export processing of a domestic industry. We also controlled time and industry effects. The definitions of all variables and modeling equations are detailed in the appendix.

8.4. Results

With the comparison of data characteristics between China and the United States, we found: that (1) regardless of the maximum, minimum, or mean, Chinese industry trade gains are overall higher than those of American industries in their bilateral trade relationship, as China yields a trade surplus with the United States (see above); that (2) the mean of power imbalance in Sino-American trade relationship yawns, with China playing a greater higher-dependence role, while the United States plays a growing higher-power role. (3) The data of GVC participation suggests that, compared to the United States, China performs most actively in international specialization. (4) The mean of American production capacity is 13.047, stronger than Chinese (12.56), while the mean of Chinese capacity utilization rate is 7.228, more efficient than American (5.572).

In previous research of correlations of major variables between China and the United States, we found that: (1) The values of the variance inflation factor of all variables stand between 1.08 and 5.55, suggesting that multicollinearity is not a major factor driving results. (2) The correlations of mutual dependence and power imbalance with trade gains present positively and negatively, respectively, consistent with the hypotheses above. (3) The correlations of GVC participation with trade gains for China is positive and significant, while for the United States, it is negative and also significant.

In further regression analysis, we included further control variables, finding that on the one hand, the effect of GVC participation on bilateral trade gains for China and the United States are both significantly negative, which indicates that GVC participation renders trade gains of each country increasingly dispersed all over the globe. GVC participation of China and the United States consistently weaken the correlation between power imbalance and trade gains, which is suggestive of the balancing effect of GVC participation on unbalanced bilateral trade gains caused by power imbalance between countries.

8.5. Conclusion and discussion

This empirical study is a substantiation of the power-dependence theory, and extends its range from firms to countries. Second, we explore the influence factors on trade gains from the perspective of this theoretical framework so as to answer the question of how the interdependence between two countries impacts bilateral trade gains (positively with mutual dependence, as well as negatively, with power imbalance). Third, we reveal the role of global value chain participation from a new angle. The more promising avenue for reversing disadvantage in a bilateral trade relationship is not withdrawal or protectionism, but further improvements to trade with the whole world, as well as a rebalancing of existing trade parties

The major conclusions are as follows: (1) While mutual dependence harvests specialization gains for bilateral trade between China and the United States, power imbalance reaps hidden trouble for the higher-dependence country. Compared to the United States, China plays the higher-dependence role. (2) GVC participation of China and the United States can weaken the negative correlation between power imbalance and trade gains. In other words, GVC participation will play the alternative dependence role, triggering a balancing-operation effect. GVC participation proves not only worthwhile for China and the United States for entering larger markets and for technological upgrading, but also for shortening the duration of trade frictions between them, reducing uncertainty in the flow of key resources from the external environment, and weakening the risk loss in trade gains due to power imbalance.

From the conclusions above, we find that international specialization can fall short of bringing about optimal gains. Higher-dependence country may suffer losses due to weakening bargaining ability in distributing trade gains. However, in the face of power imbalance, anti-globalization or trade protectionism sharpens the risk of lost trade gains. In other words, against the backdrop of uncertainty in the flow of key resources externally, the pathway to trade balance is not de-globalization, but attempt a rebalancing of existing partnerships, all while integrating more intricately than ever into global value chains.

References

Baldwin, R. 2016. *The Great Convergence*. Cambridge: The Belknap Press of Harvard University Press.

Baldwin, J., & Yan, B. 2014. *Global Value Chains and the Productivity of Canadian Manufacturing Firms*. Statistics Canada Economic Analysis Research Paper Series, No.11F0027M.

Burt, R. S. 1983. *Corporate Profits and Cooptation: Networks of Market Constraints and Directorate Ties in the American Economy.* New York: Academic Press.

Buckley, P. J. 2020. The Theory and Empirics of the Structural Reshaping of Globalization. *Journal of international business studies*, DOI: 10.1057/s41267-020-00355-5.

Casciaro, T., & Piskorski, M. J. 2005. Power Imbalance, Mutual Dependence, and Constraint Absorption: A Closer Look at Resource Dependence Theory. *Administrative Science Quarterly*, 50(2): 167-199.

Emerson, R. M. 1962. Power-Dependence Relations. *American Sociological Review*, 27(1): 31-41.

Finkelstein, S. 1997. Inter-industry Merger Patterns and Resource Dependence: A Replication and Extension of Pfeffer(1972). *Strategic Management Journal*, 18(10): 787-810.

Frankel, J. A., & Romer, D. 1999. Does Trade Cause Growth. *American Economic Review*, 89(3): 379-399.

Gulati, R., & Sytch, M. 2007. Dependence Asymmetry and Joint Dependence in Interorganizational Relationships: Effects of Embeddedness on a Manufacturer's Performance in Procurement Relationships. *Administrative Science Quarterly*, 52(1): 32-69.

Hillman, A. J., Withers, M. C., & Collins, B. J. 2009. Resource Dependence Theory: A Review. *Journal of Management*, 35(6): 1404-1427.

Hummels, D. L., Ishii, J., & Yi, K. M. 2001. The Nature and Growth of Vertical Specialization in World Trade. *Journal of International Economics*, 54(1): 75-96.

Kano, L. 2018. Global Value Chain Governance: A Relational Perspective. *Journal of international business studies*, 49(6):684-705.

Kano, L., Tsang, EWK., Yeung, HWC. 2020. Global Value Chains: A Review of the Multi-disciplinary Literature. *Journal of international business studies*, 51(4):577-622.

Krugman, P. R., & Obstfeld, M. 2005. *International economics: theory and policy/. 7th ed.* Boston: Pearson Addison-Wesley.

UNCTAD. 2013. *World Investment Report 2013: Global Value Chains: Investment and Trade for Development*. New York: United Nations Publication.

UNCTAD. 2019. *Trade and Development Report 2019: Financing a Global Green New deal*. New York: United Nations Publication.

UNCTAD. 2020. *World Investment Report 2020: International Production Beyond the Pandemic.* New York: United Nations Publication.

World Bank. 2020. *World Development Report 2020: Trading for Development in the Age of Global Value Chains.* Washington: World Bank Publication.

Wang, Z., Powers, W., & Wei, S. J. 2009. *Value Chains in East Asian Production Networks: An International Input-Output Model Based Analysis*. USITC Working Paper, No.2009-10-C.

Chapter 9
What Unicorns Say About Emerging Markets and the Respective Entrepreneurial Ecosystems:
Three Cases from Latin America

Veneta Andonova - Associate Professor, Universidad de Los Andes, Bogota, Colombia
Juana García - Associate Professor, Universidad de Los Andes, Bogota, Colombia
Andrés Guerrero Alvarado - Director Centro de Emprendimiento, Universidad de Los Andes, Bogota, Colombia

Executive Summary

Latin America is currently home to an increasing number of unicorns bringing dynamism to the regional entrepreneurial scene. In emerging economies such as Brazil, Argentina and Colombia, this small group of high-tech high-growth entrepreneurial ventures (valued at over $1 billion dollars) mostly concentrate in relatively lower-tech domains such as e-commerce; direct-to-consumer services; supply chain, logistics and delivery. This is in contrast with developed economies, where unicorns dominate innovation-intensive domains, requiring fundamental science breakthroughs such as cybersecurity, artificial intelligence, and analytics. This chapter suggests that Unicorns should be seen as an indicator of the maturity of local entrepreneurial ecosystems, whereby the US and China prove most advanced.

9.1. Introducing unicorns: Numbers and traits

Unicorns are a small group of high-tech high-growth entrepreneurial ventures valued at over $1 billion dollars (Acs et al., 2017). The term was coined in 2013 by the founder of Cowboy Ventures, Aileen Lee, in reference to 39 startups with exponential growth and high valuations (Lee, 2013). When compared to the level of overall entrepreneurial activity, unicorns stand, as their name suggests, as an extremely rare phenomenon.

Nevertheless, the capacity of unicorns to transform industries and send seismic waves across the economic and social systems as a consequence of their business models, innovation capabilities, and specialized knowledge has put them at the forefront of

academic and investor interest. Typically, unicorns rely on the exponential growth that technological innovation and digitalization offer and most often they can be labeled as digital unicorns.

Unicorns tend to exhibit a number of common traits (De Massis, Frattini & Quillico, 2016). First, they are relatively small and have a flat organizational structure allowing for agile and swift decision-making. Many are run with a lean startup methodology that emphasizes fast prototyping and continuous improvement of the product-market fit.

Secondly, unicorns are led or supported by serial entrepreneurs who have experienced multiple business failures in their professional lives. Hence, they benefit from a company culture mindful of the importance of anticipating the constraints behind an innovative idea and a cult of "fast and cheap failing."

Third, unicorns are backed by VC firms. The strong presence of VCs among their shareholders creates enormous pressure to build successful new businesses quickly, with an eye toward a possible exit. Most unicorns tend to be narrowly focused on leveraging digital innovations. By adopting pervasive digital platforms and social networks as channels for market entry and growth, unicorns successfully capitalize on digital innovations frequently using business models light on physical assets.

Finally, unicorns prioritize rapid growth, meaning that the core of their economic logic revolves around a "get big quick" ideology. Reid Hoffman coined the term blitzscaling as "funding a venture for extremely fast growth and prioritizing speed over efficiency in an environment of uncertainty" (Kuratko, Holt & Neubert, 2019). Blitzscaling involves rapid growth, growth on a global scale and scaling towards a first mover advantage, three elements on which unicorns aspire to build sustainable competitive advantage. Despite the drive for fast growth, the vesting period for many unicorns has lasted over seven years, indicating that investor patience is another important ingredient in breeding unicorns.

Unicorns are overwhelmingly concentrated in a few countries and regions, inviting research and much speculation over which institutional and cultural factors have enabled the entrepreneurial ecosystems in such sparse global locations to house the largest numbers of the world's unicorns. In the Startup Genome 2020 top 30 global startup ecosystems, the US and the Asia-Pacific region tout ten locations each (Silicon Valley, New York, Boston, Los Angeles, Seattle, Washington DC, Chicago, San Diego, Atlanta and Denver; Beijing, Shanghai, Tokyo, Singapore, Seoul, Shenzhen, Bangalore, Sydney, Hangzhou and Hong Kong).

When analyzing the origin of unicorns, it is obvious that the US and China lead the pack but the distribution has a long tail, which bodes well for small economies such as Estonia with Skype or emerging economies such as Colombia with Rappi (entrepreneurial hotspots for one or more unicorns). Being the birthplace of a unicorn creates significant benefits for the local entrepreneurial ecosystem. It expands the pool of well-paid tech jobs, mobilizes global investor interest, puts the location on the map for entrepreneurial hot-spots, attracts highly mobile entrepreneurial talent, and boosts the local entrepreneurial spirit with inspirational role models. In emerging economies, the escalation of unicorns is not easy to describe: sometimes a unicorn from an emerging economy is a copycat of a successful US-based unicorn, leveraging a specific location-specific advantage such as language, culture, or institutional rules. Other times, a unicorn from an emerging economy owes its success to an original business model, value proposition, or technology.

According to CB INSIGHTS, a tech market intelligence platform, between 2015 and 2019 there was an annual average of 370 financing agreements for an average deal value of US 145 million in the world of technological entrepreneurship (CB Insights, 2020). Since 2015, 2018 was the year with the highest number of agreements (407) with an average deal value of US 215 million.

In 2020, the United States was home to 228 unicorns, followed by China with 122, the United Kingdom with twenty-five, India with twenty-one, Germany with thirteen, and South Korea with ten (CB Insights, 2020). In sum, nearly half of the world's unicorns are US-based, while four out of every ten are Chinese. Outside of the six countries mentioned above, the rest of the world is home to sixty unicorns.

The chapter is organized as follows. The first section highlights the role of entrepreneurial ecosystems for nurturing unicorns and emphasizes the importance of different context conditions in emerging and developed economies. Next, we identify and characterize the unicorns of emerging economies, reporting country of origin, sector and venture capital attracted to the sector. Finally, we delve deeper into Latin American unicorns, presenting three short case studies to illustrate the specificities of some of the most successful regional ventures.

9.2. Context conditions the rise of unicorns

Unicorns are born inside entrepreneurial ecosystems.[50] In the literature, the concept of an ecosystem is understood as a metaphor, according to which business organizations can operate not only as components of industries but also as interlinked nodes of a network that traverse industry boundaries (Neumeyer and Corbett, 2017). From this perspective, entrepreneurial success is not the result of isolated individual effort but a consequence of the coordination and collective work of various actors such as serial entrepreneurs, inventors, investors, policymakers, educators, etc. In understanding the phenomenon of unicorns, the Silicon Valley model of entrepreneurship has become the dominant paradigm whose policy agendas, media programs, and mindsets of corporate managers (Acs et al. 2009; Audretsch 2009; Audretsch and Keilbach 2004: Lehman et al., 2018) have shaped the creation of the much-desired unicorns seen as the ultimate success indicator of any entrepreneurial ecosystem.

The concept of entrepreneurial ecosystems emerged to reflect "a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory" (Isenberg, 2010: p.3). Entrepreneurial ecosystems focus especially on entrepreneurial motivations; venture financing and support (Brown and Mason, 2017); and on actors such as incubators, mentor institutions, universities and research centers (Alvedalen and Boschma, 2017), considered the generators and facilitators of entrepreneurial culture (Mason and Brown, 2014). Extant research has framed entrepreneurial ecosystem as emergent, fast-paced, self-organizing, and self-sustaining arrangements that come into existence out of the interactions across different components of the entrepreneurial ecosystem (Isenberg, 2011; Andonova et al. 2019): (i) government programs and public sector efficacy, (ii) academic and research institutions and R&D transfer, (iii) market functioning and private sector sophistication, (iv) infrastructure, (v) culture, and (vi) entrepreneurial finance. It is evident that developed and emerging countries differ in terms of all these dimensions which arguably shape the differences among their respective unicorns.

9.3. Who are the unicorns in the emerging economies?

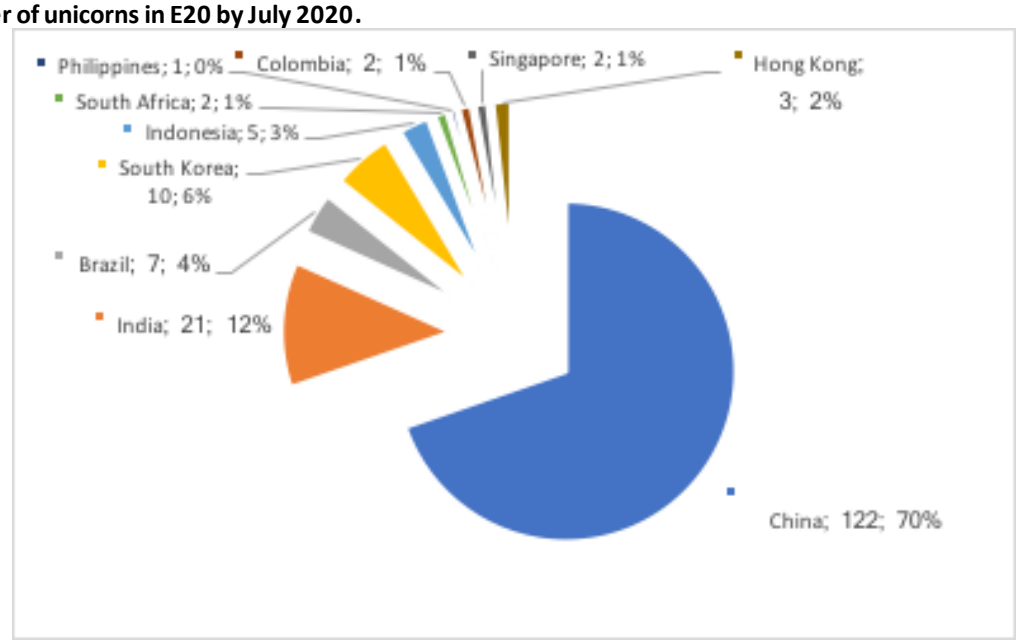
By focusing on the top 20 emerging economies in the world (China, India, Brazil, Russia, South Korea, Mexico, Indonesia, Saudi Arabia, Turkey, Poland, Argentina, Thailand, Iran, Nigeria, South Africa, Malaysia, Philippines, Colombia, Pakistan, and Chile), we study the CB Insights database of unicorns and uncover a skewed distribution (see Figure 9.1). Only eight of the 20 countries have borne at least one unicorn (China -Hong Kong included-, India, South Korea, Indonesia, Philippines, South Africa, Brazil, and Colombia), with China dominating the map (see Figure 9.2).

[50] For a detailed discussion of the construct of entrepreneurial ecosystem and its application away from the global entrepreneurial hotspots see Andonova, Nikolova and Dimitrov, 2019. For a comparison between entrepreneurial ecosystems and national innovation systems see Andonova, Pérez-López and Schmutzler, 2020.

Figure 9.1. E20 and unicorns, August 2020.

Source: Authors' representation based on data taken from https://www.cbinsights.com/research-unicorn-companies

Figure 9.2. Number of unicorns in E20 by July 2020.



Source: Authors' calculations based on data taken from https://www.cbinsights.com/research-unicorn-companies

Sector wise, entrepreneurial ecosystems offer distinctive advantages that arguably determine the emergence of unicorns (see Table 9.1). For example, the entrepreneurial ecosystems in developed countries tend to give rise to unicorns in fintech, cybersecurity, data management and analytics, internet software and services, health, and artificial intelligence. On the other hand, the entrepreneurial ecosystems in emerging economies birth unicorns in e-commerce, EdTech, supply chain, logistics, and delivery. In both developed and emerging countries, mobile and telecommunications services, auto and transportation, hardware, travel, and consumer and retail entrepreneurial ecosystems prove equally well-equipped to nurture unicorns.

Table 9.1. Unicorns by sector in emerging and developed economies.

SECTOR	NUMBER OF COMPANIES		TOTAL VALUE BY SECTOR BILLION USD	
	EMERGING	NON EMERGING	EMERGING	NON EMERGING
Artificial intelligence	13	33	$105.18	$70.08
Auto & transportation	16	13	$109.73	$29.39
Consumer & retail	6	13	$13.77	$31.00
Cybersecurity	1	13	$2.00	$26.32
Data management & analytics	2	20	$3.15	$67.51
E-commerce & direct-to-consumer	34	22	$88.69	$54.03
Edtech	11	7	$32.97	$9.10
Fintech	13	48	$42.67	$165.22
Hardware	11	8	$49.63	$30.34
Health	6	27	$14.54	$71.05
Internet software & services	11	50	$29.79	$97.06
Mobile & telecommunications	19	11	$48.44	$17.13
Other	9	22	$17.97	$86.05
Supply chain, logistics, & delivery	17	10	$38.12	$43.40
Travel	7	6	$18.50	$26.30
TOTAL	176	303	$615.15	$823.98

Source: Authors' calculations based on data taken from https://www.cbinsights.com/research-unicorn-companies

According to average firm value by sector, unicorns are more highly valued in emerging countries but its standard deviation is much greater. While in emerging countries the valuation ranges between US $1.6 to US $8.1 billion, in non-emerging countries it is narrower, ranging from US $1.3 to US $4.4 million. Firm valuations in the consumer & retail, health, e-commerce and fintech sectors are similar in both contexts, but the number of unicorns present in each differs significantly.

The sectors with the highest total investments in unicorns are artificial intelligence, auto & transportation, and fintech, with the highest participation in these sectors at hands of China and the US. China's dominance is absolute with 12 out of 13 unicorns being based there. Twenty-three (70%) of the 33 artificial intelligence unicorns in developed economies are based in the US, followed by the UK and Israel, with 4 and 3 unicorns, respectively.

Even with such coarse data, it is possible to identify a pattern: While unicorns in emerging economies are dedicated to providing solutions in relatively lower-tech mass domains such as e-commerce; direct-to-consumer services; supply chain, logistics and delivery; and EdTech, unicorns in developed economies and China dominate knowledge-intensive technology domains such as cybersecurity, artificial intelligence and analytics. We conjecture that the natural and endowed conditions of emerging economies such as large populations coupled with a lack of basic infrastructure and services offer excellent opportunities for unicorns, which can provide solutions and even boost technological leap-frogging in basic services such as banking or education. On the other hand, new and fast-developing areas such as cybersecurity constitute a territory reserved for entrepreneurial ecosystems attracting enough trained human talent and expertise to expand the frontier of human knowledge.

9.4. A close-up on unicorns from LATAM

When compared to the impressive numbers of unicorns in Asia-Pacific, the emerging entrepreneurial ecosystems in Latin America appear to be in their early stages of development. For example, in the Startup Genome 2020 ranking of the top 30 global entrepreneurial ecosystem, Sao Paulo, the only Latin American entrepreneurial hub, was ranked after the ten entrepreneurial ecosystems of the Asia-Pacific region. Despite the lower numbers, Latin America stands as a reference for global entrepreneurship mainly because of increased investments and the growing pool of developers. The volume of investment in the region has increased from 143 million dollars in 2011 to 1,976 million in 2018, according to Statista data. The bulk is concentrated in the Brazilian market, which accounts for almost 56% of the pie. Chile, Colombia, and Argentina follow. The socioeconomic component is also significant with a middle class that enjoys greater purchasing power, leading to a growing demand for quality and innovative products and services (IDB, 2020).

In the aggregate, Latin America represents 0.22% of the global population of unicorns in the world and 0.53% of the unicorns based in emerging markets. Latin American unicorns concentrate in three sectors: supply chain, logistics and delivery; e-commerce and direct-to-consumer services; and fintech.

Table 9.2

contains a list of Latin American unicorns to date. The next section presents a brief description of three of the most remarkable unicorns in Latin America: Nubank, Rappi and MercadoLibre.

Table 9.2. Unicorns based in Latin America

Name	Value	Country	Sector
KIO Networks	1 billion	Mexico	Software and analytics
PagSeguro	13.3 billion	Brazil	E-commerce
QuintoAndar	1 billion	Brazil	E-commerce and direct-to-consumer
99TAXIS	1 billion	Brazil	Supply chain, logistics and delivery
TOTVS	2.4 billion	Brazil	Software
B2W Digital	4.4 billion	Brazil	E-commerce and direct-to-consumer
Nubank	10 billion	Brazil	Fintech
Widelife Studios	1.3 billion	Brazil	Other
Gympass	1 billion	Brazil	E-commerce and direct-to-consumer
ARCO	1 billion	Brazil	Edutech
Ascentry	1.8 billion	Brazil	Hardware
iFood	1 billion	Brazil	Supply chain, logistics and delivery
Loggi	1 billion	Brazil	Supply chain, logistics and delivery
QuintoAndar	1 billion	Brazil	E-commerce and direct-to-consumer
EBANX	1 billion	Brazil	Fintech
Loft	1 billion	Brazil	E-commerce and direct-to-consumer
LifeMiles	1.15 billion	Colombia	Other
Rappi	3.5 billion	Colombia	Supply chain, logistics and delivery
Crystal Lagoons	1 billion	Chile	Other (infrastructure)
Prisma	1 billion	Argentina	E-commerce and direct-to-consumer
OLX	1 billion	Argentina	E-commerce and direct-to-consumer
MercadoLibre	31.5 billion	Argentina	E-commerce and direct-to-consumer
Globant	3.8 billion	Argentina	Software
Despegar	1,9 billion	Argentina	E-commerce and direct-to-consumer
AuthO	1 billion	Argentina	Software

Source: MacroTrend; TechCrunch; Ycharts; MarketWatch; Surfing Tsunamis; NXTP Labs; Bloomberg;

A. Nubank: digital banking for the unbanked

Nubank is a Brazilian neobank, a type of digital bank that operates exclusively online. It is the largest fintech in Latin America. The value proposition of Nubank is excellent customer service provision with no fee through digital channels, lowered expenses, and improved efficiency.

It was founded in May 2013 by David Velez, Edward Wible, and Cristina Junqueira. The seed investment was provided by Sequoia Capital and Kaszek Ventures. To date, it has endured seven rounds of investments. In February 2018, it reached a billion-dollar valuation status and clinched unicorn status. In 2019, it became the sixth largest bank in Brazil. This giant fintech company touts operations in Brazil (headquarters), Mexico, Argentina, and Berlin (engineering office). It is considered a technology company that places the customer at the center of its strategy. Nubank develops proprietary technology and aspires to challenge the complexity of

the industry by making data-driven decisions (Wall Street Journal, 2019). Its declared goal is to put citizens back in control when it comes to money and fight the complexity of the status quo.

Nubank's first product was launched in 2014. It was a credit card backed by Mastercard also known as Roxinho (purple in Portuguese due to its color). Its main differentiation feature was its absence of annuity fees or commissions, exclusively managed through the mobile app. The second product, Nu Rewards, was launched in August 2017 as a rewards program with points with no expiration (optional for card holders). It gave customers the freedom to choose among several categories to instantly exchange points over the app. The third product, NuConta, launched in October 2017, was a digital savings account that permitted free and unlimited withdrawal. The fourth, PJ, launched in August 2019, was a digital bank account for small companies, entrepreneurs, and freelancers. The fifth came to be a personal loan launched in 2019 with a value proposition that guaranteed no small print, hidden fees, or pranks.

In just six months in 2020, NUBANK went from boasting 20 million users in January to more than 25 million users by July, and it continues to attract a significant and growing proportion of the 45 million unbanked Brazilians. The COVID-19 pandemic would rapidly expand its operations driven by government aid and the intermediation services for utility bills, opening up 42,000 accounts per day. Building on the support of the unbanked segments and a low-cost model, NUBANK has turned into a growing and formidable competitor for the traditional financial sector.

B. Rappi: delivery and convenience for the middle class

Rappi was founded as a technology company in Colombia in 2015 by Felipe Villamarín, Sebastián Mejía, and Simón Borrero as an experiment in Bogota's Chicó neighborhood. In September 2018 it reached a billion-dollar valuation status converting it into a unicorn. It is currently a multinational involved in over 25 markets, and present in Mexico, Costa Rica, Brazil, Ecuador, Uruguay, Argentina, Chile, and Peru.

Rappi is the provider of a marketplace platform to which three types of users are connected: the buyer, the Rappi delivery person, and the business partner (restaurants, shops, and retailers). In essence, Rappi is a platform that connects people with time and in need of a source of income with people with no time willing to pay for convenience. Rappi offers a broad range of products and services available for delivery such as groceries, meals, pharmaceuticals, and ATM withdrawal, among others.

The essential element of the business model is real-time information on consumption patterns and trends. This information is used internally so as to more efficiently match supply and demand in every location but is also sold to third parties to improve positioning and new brand releases. Rappi relies on between 160-200 engineers for technological development, of whom 80% are Colombian.

In 2020, Rappi was valued at US$ 3.5 billion and had been growing users at a monthly rate of 25% until the end of 2019. Its business model was supported by Latin America's middle classes and their increasing adoption of the app, as well as Rappi's alliances with large companies such as Davivienda and Cabify, its seamless integration with small and medium businesses, and its analytical marketing technology. The COVID-19 pandemic yielded a generally positive impact on the growth of the delivery operation but the net effect is still difficult to measure as an increase in grocery deliveries was somewhat offset by restaurant closures, a surge in home cooking, and a less-than-bright future for the economic fortunes of the middle class. The difference in penetration across markets also explains the differential results across the Latin America region. Currently the valuation forecast for Rappi for 2021 stands at US$ 5 billion.

C. Mercado Libre: The largest unicorn in Latin America

MercadoLibre is the most popular e-commerce site in Latin America in terms of its number of visitors, at 174.2 million as of 2016. It was founded in 1999 in Argentina by Marcos Galperin as an operator of online marketplaces for e-commerce and online auctions, with operations in Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Panama, Peru, Portugal, Uruguay, and Venezuela.

In 2007, MercadoLibre became the first technology company from Latin America to be listed on NASDAQ. The company now stands as the largest unicorn in Latin America, operating as the e-commerce leader in 18 countries. In 2018, Mercado Libre touted US$1.8 billion in revenue and over US$30 billion in market capitalization.

Mercado Libre designed an innovative payment system to address its market's safety requirements. This new system, MercadoPago, emulated the PayPal model and guaranteed mediation in the market while providing a safer tool for its users. This is to become a complete money management system, replete with payments to friends, investment options, and small loans (Casanova et al., 2020).

During the first quarter of 2020, Mercado Libre reported a growth of 31% reaching a total of 43.2 million unique users. The product innovations related to payment mechanisms explain the company's accelerated growth. The logistical limitations of the courier services in Latin American would not impede the expansion of its base of products and services. The region is home to 650 million potential users and the technological adoption driven by COVID-19 is expected to generate even higher growth for MercadoLibre.

The prominent position of Brazil can be explained by the dynamism of Sao Paulo as a global start-up hub in addition to the relative strength of the country in R&D and business sophistication, as reported in the Global Innovation Index data. Neverth eless, Brazilian as well as the other Latin American unicorns belong to sectors that do not typically demand fundamental research breakthrough and often tap the opportunities offered in business-to-consumer models in their sizeable domestic markets.

9.5. Conclusions

Unicorns solve problems via the use of digital technology, enabling them to grow exponentially. Despite the fact that unicorns from emerging markets rely more on their innovative business model design rather than on cutting edge technological i nnovation, these companies are set to profoundly change the region's economic and social landscape and accelerate digitalization.

Globally, two countries dominate the population of unicorns —the US and China. While China is still considered an emerging market, its statistics in relation to the attractiveness of the Chinese entrepreneurial ecosystems and the number of Chinese uni corns involved in knowledge and innovation-driven sectors such as artificial intelligence have set it apart from the rest.

The dynamism that digitalization and digital unicorns bring to emerging economies —Latin America in particular—enables de-facto leapfrogging as a realistic mid-term option, especially in domains where digital transformation brings about disruption of the status quo and can unleash powerful social progress in areas such as education and banking. The number of unicorn companies in Latin America is still not comparable to the number of Asian unicorns, but nearly all rely on digitalization and harness a st rong technological base. While many are local versions of international leaders, Latin American unicorns would adapt the reference business model to local conditions and markets, showing resilience across variegated infrastructure, legal frameworks and cul tures.

References

Acs, Z. J., Braunerhjelm, P., Audretsch, D. B., & Carlsson, B. (2009). The knowledge spillover theory of entrepreneurship. Small Business Economics, 32(1), 15–30.
Acs, Z. J., Stam, E., Audretsch, D. B., & O'Connor, A. (2017). The lineages of the entrepreneurial ecosystem approach. Small Business Economics, 49(1), 1–10.
Alvedalen, J., & Boschma, R. (2017). A critical review of entrepreneurial ecosystems research: Towards a future research agenda. European Planning Studies, 25(6), 887-903.
Andonova, V., Nokolova, M., & Dimitrov, D. (2019). Entrepreneurial ecosystems in unexpected places: Examining the success factors regional entrepreneurship, Palgrave Macmillan.
Andonova, V., Pérez-López, J., & Schmutzler, J. (2020). The role of diaspora in entrepreneurial ecosystems and national innovation systems, in Tsvetkova, A., Schmutzler, J., & Pugh, R. (Eds.), Entrepreneurial Ecosystems Meet Innovation Systems, Eduard Elgar.
Audretsch, D. B. (2009). The entrepreneurial society. Journal of Technology Transfer, 34(3), 245–254.
Audretsch, D. B., & Keilbach, M. (2004). Entrepreneurship capital and economic performance. Regional Studies, 38(8), 949–959.
Brown, R. and Mason, C. (2017). Looking inside the spiky bits: a critical review and conceptualization of entrepreneurial ecosystems. Small Business Economics, 49(1) 11-30.
Casanova L., Finchelstein D., Miroux A., (2020) Digital Companies Driving Business Model Innovation in Emerging Markets: The Cases of Alibaba, Flipkart, Jumia and Mercado Libre, in From Copycats to Leaders: Innovation from Emerging Markets, Cambridge University Press, 2020.
CB INSIGHTS. (2020). Available at https://www.cbinsights.com/research-unicorn-companies.
De Massis, A., Frattini, F., & Quillico, F. (2016). What Big Companies Can Learn from the Success of the Unicorns. Harvard Business Review, March 14, 2016.
IDB 2020, Outlook for Latin America and the Caribbean: New Challenges to Growth, https://blogs.imf.org/2020/01/29/outlook-for-latin-america-and-the-caribbean-new-challenges-to-growth/.
Isenberg, D. (2010). How to Start an Entrepreneurial Revolution, Harvard Business Review, June 2010.
Kuratko, D., Holt, H. & Neubert, E. (2019). Blitzscaling: The good, the bad, and the ugly. Business Horizons.
Volume 63, Issue 1, January–February 2020, Pages 109-119.
Lee, Aileenn. (2013). https://techcrunch.com/2013/11/02/welcome-to-the-unicorn-club/.
Lehman, E., Schenkenhofer, J. & Wirsching, K. (2018). Hidden champions and unicorns: a question of the context of human capital investment. Small Business Economics, doi:10.1007/s11187-018-0096-3.
Mason, C. and Brown, R. (2014). Entrepreneurial ecosystems and growth oriented entrepreneurship. OECD, 1-38.
Neumeyer, X. & Corbett, A. (2017). Entrepreneurial Ecosystems: Weak Metaphor or Genuine Concept?, The Great Debates in Entrepreneurship (Advances in the Study of Entrepreneurship, Innovation and Economic Growth, Vol. 27), Emerald Publishing Limited, pp. 35-45. https://doi.org/10.1108/S1048-473620170000027005.
The Startup Genome. (2020). The Global Startup Ecosystem Report 2020, Available at https://startupgenome.com/report/gser2020.
Wall Street Journal, https://www.wsj.com/articles/brazils-nubank-to-be-valued-at-more-than-10-billion-in-new-financing-round-11564100322.

Chapter 10
Talent Competitiveness in Latin America: Challenges and Opportunities for MNCs

Anabella Davila - Professor and Research Chair: Strategy and Management in Emerging Economies, Monterrey, Mexico

Executive Summary

The chapter analyses the competitiveness indicators of health, education, and labor market efficiency across the Latin American region to identify talent management challenges and opportunities for multinational corporations. Given that the area reports low levels of competitiveness in these indicators, it concludes that the challenge for multinational companies is to re-contextualize their global talent management policies and practices in terms of country indicators of performance. They should also step in to compensate for such talent management challenges and develop new organizational capabilities that enable them to attract, grow, and retain talent across their Latin American subsidiaries.

10.1. Introduction

Talent competitiveness in Latin America is one of the main challenges for multinational corporations (MNCs). Scholars call for a broader scope of global talent management (GTM) that includes the country effects and influences on health, education, and labor market efficiency. Additionally, they urge study on what governments do to attract and develop national talent (Khilji, Tariq ue, & Schuler, 2015). The macro context is essential for MNCs making appropriate decisions on talent allocation, development, and retention in their foreign subsidiaries.

The domain of GTM includes a broad range of HR policies and practices. However, scholars and practitioners include the following categories: location and relocation management, planning and forecasting, staffing (e.g., attracting, selecting, retaining, reducing and removing), training and development, and employee performance evaluation along with firm strategy, in addition to the needs and demands of a new workforce and regulatory requirements (Schuler, Jackson, & Tarique, 2011). Thus, in this chapter, I present the factors behind the world of work such as health, education and labor market efficiency in Latin America. Their an alysis and discussion shall illuminate the challenges and opportunities that MNCs encount er when designing GTM policies and practices in the region.

In what follows, I examine one of the significant international reports—The World Economic Forum (WEF) Global Competitiveness Report—to discern what would be the challenges and opportunities for GTM given the stage of development of the

elements that conform the labor context. I summarize the main contributions of the WEF competitiveness report on the health, education and labour market pillars in Latin America. Then I discuss the challenges for MNCs managing talent in the region. The chapter turns to the opportunities that MNCs encounter for talent management in Latin America before ending with insights on the implications in the region.

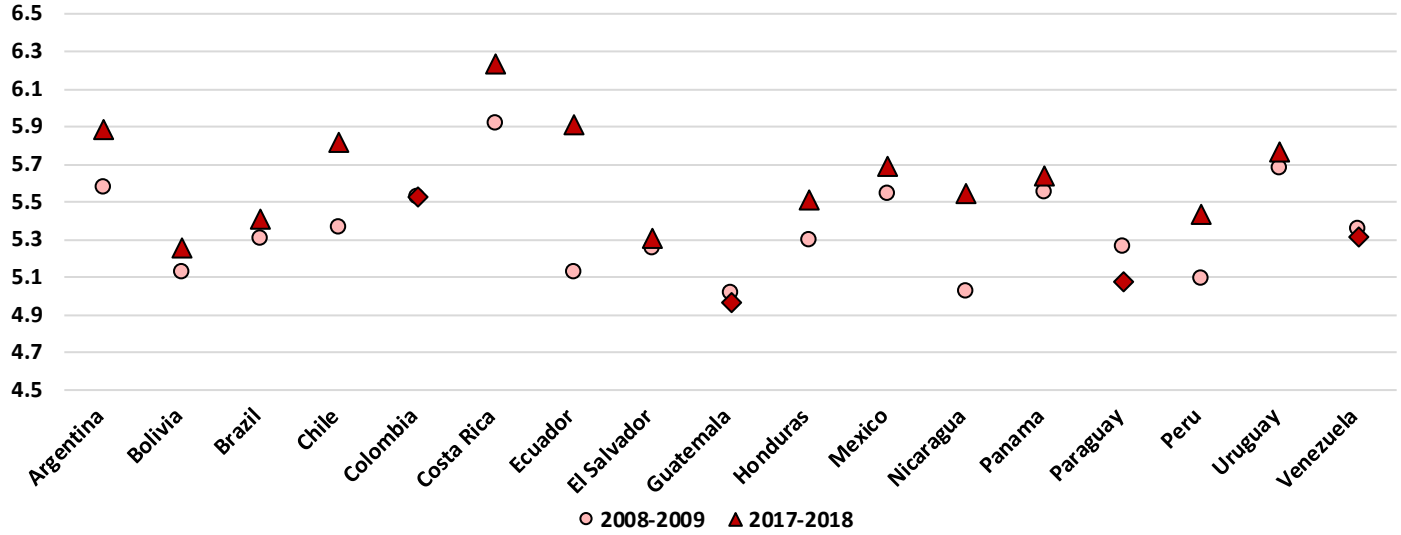
10.2. Pillars of Talent Competitiveness in Latin America

The Global Competitiveness Report details the indicators that account for the structural conditions of more than 140 economies targeting the key drivers of development and economic growth. The Report uses the definition of competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country. In this regard, the Report provides the Global Competitiveness Index (GCI) based on a comprehensive set of indicators that measure the microeconomic and macroeconomic foundations of national competitiveness. The data stem from the Executive Opinion Survey (EOS) and applied to managing directors of MNC subsidiaries; leading representatives of industrial and employer associations; labor unions; economic and social institutes; university faculty of economics or business administration; and media specialized in economics. Additionally, the Report uses relevant quantitative data gathered from statistical institutes and ministries as well as other international organizations. Thus, the purpose of the Report is to support policymakers and business leaders in their efforts to formulate and improve economic policies and institutional reforms.

This chapter analyzes the pillars related to health, education, and labor market efficiency of the GCI. From 2008 – 2009 to 2017 – 2018, the GCI measured the competitiveness of each country through twelve pillars. Each pillar is organized into three sub-indices in accordance with the WEF's competitiveness framework for those years. The basic requirements include the pillars of institutions, infrastructure, macroeconomic environment, and health and primary education key in factor-driven economies. The efficiency enhancers incorporate the pillars of higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, and market size, vital in efficiency-driven economies. The innovation and sophistication factors sub-index comprises the pillars of business sophistication and innovation behind innovation-driven economies.

The 4th pillar of the sub-index assessed health and primary education. It highlighted the importance of a healthy workforce in a country's competitiveness and productivity. Unhealthy workers are less productive and require continuous absences incurring high costs. Thus, this pillar assessed the investment in the provision of health services. It also included the quantity and quality of the primary education, highly corelated with human development (WEF, 2017 – 2018). Figure 10.1 shows the level of both factors for the years 2008 – 2009 and 2017 – 2018 using a scale of 0 to 7 (WEF, 2008 – 2009; 2017 – 2018). More generally, one can observe country performance in the two points of time with ten year differences; the region improved little in the aggregate indicators of health and primary education. Although the 2017 – 2018 GCI Report informed that the area made some progress in this pillar, it still must improve performance in others to impact growth (WEF, 2017 – 2018).

Figure 10.1. 4th Pillar: Health and Primary Education of Latin American Countries.

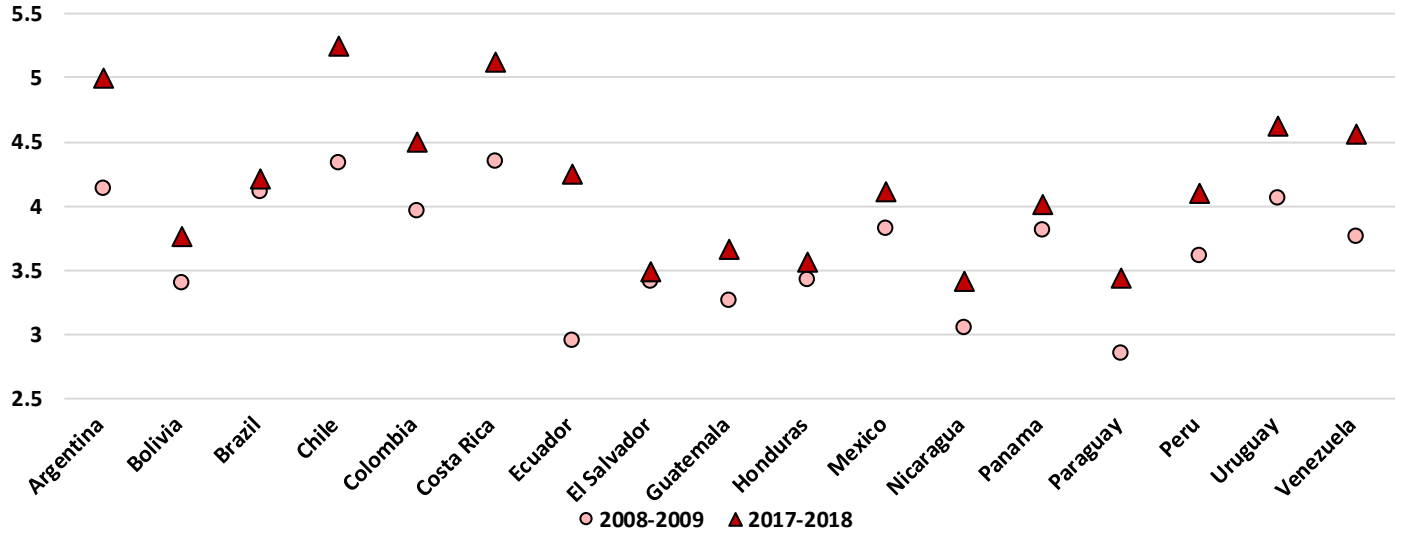


Source: Elaborated by the author. Data obtained from the 2008-2009 and 2017-2018 Global Competitiveness Reports of the World Economic Forum. Data from Bolivia corresponds to the 2008-2009 and 2016-2017 Global Competitiveness Reports because the country was excluded from the following reports for insufficient data availability.

The efficiency enhancers sub-index included the 5th pillar that assessed the enrollment and quality of higher education and training. It acknowledged that having well-educated workers is a requirement for an economy to advance from pure manufacturing to a more top position in the value chain. It also measured staff training that included vocational and continuous on-the-job training to ensure constant upgrading of worker skills (WEF, 2017 – 2018).

Figure 10.2 shows that some countries made some progress on the pillar of higher education and training in the two points of time—2008-2009 and 2017-2018. However, on a scale of 1 to 7, the average country score obtained a value of 4. The average rating in this pillar substantiate the competitiveness of factors such as the secondary and tertiary education enrollment rate, quality of the education systems, quality of math and science education, quality of business/management schools, internet access in schools, local availability of specialized training services, and staff training. This last item referred to the extent companies invested in training and employee development. Most of this data is sourced to the United Nations Educational Scientific and Cultural Organization (UNESCO) Institute for Statistics, Data Centre and the WEF's EOS (WEF, 2017 – 2018).

Figure 10.2. 5th Pillar: Higher Education and Training of Latin American Countries.

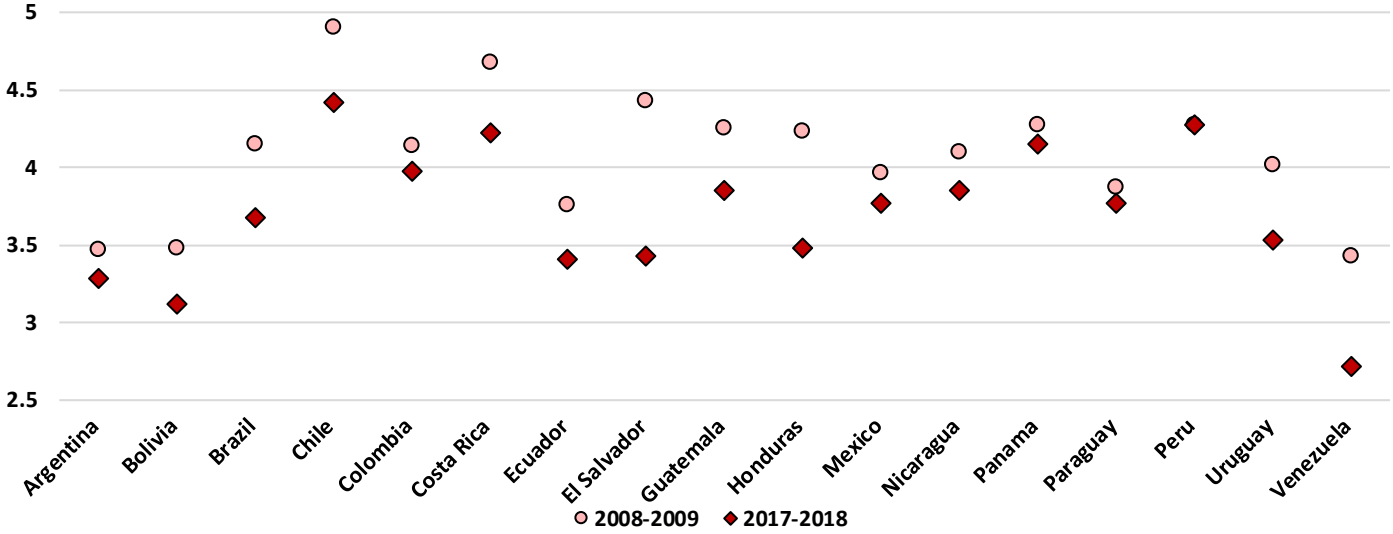


Source: Elaborated by the author. Data obtained from the 2008-2009 and 2017-2018 Global Competitiveness Reports of the World Economic Forum. Data from Bolivia corresponds to the 2008-2009 and 2016-2017 Global Competitiveness Reports because the country was excluded from the following reports for insufficient data availability.

The efficiency enhancers sub-index included the 7th pillar that measured labor market efficiency. It sought to assess if workers were allocated effectively and received appropriate incentives to motivate them in their jobs. Efficient labor markets enable workers to shift from one economic activity to another without detriment to their careers or income. This pillar also included indicators to measure meritocracy and equality in the workplace (WEF, 2017 – 2018).

Figure 10.3 provides evidence that in 2017 – 2018, Latin American countries scored lower than in the 2008 – 2009 year in pillar 7. It measured factors such as the level of cooperation or confrontation in labor-employer relations; how wages were determined either by centralized bargaining process or by company; the regulations for hiring and firing workers; the costs of severance payments and penalties for terminating a labor contract; the effects of taxation and social contributions to incentivize work; the relationship between pay and productivity; how many companies rely on professional managers versus relatives or friends; a country's capacity to attract and retain talent—local and international; and the ratio of women to men in the labor force. Most of this data traces back to WEF's EOS (WEF, 2017 – 2018).

Figure 10.3. 7th Pillar: Labor Market Efficiency of Latin American Countries.



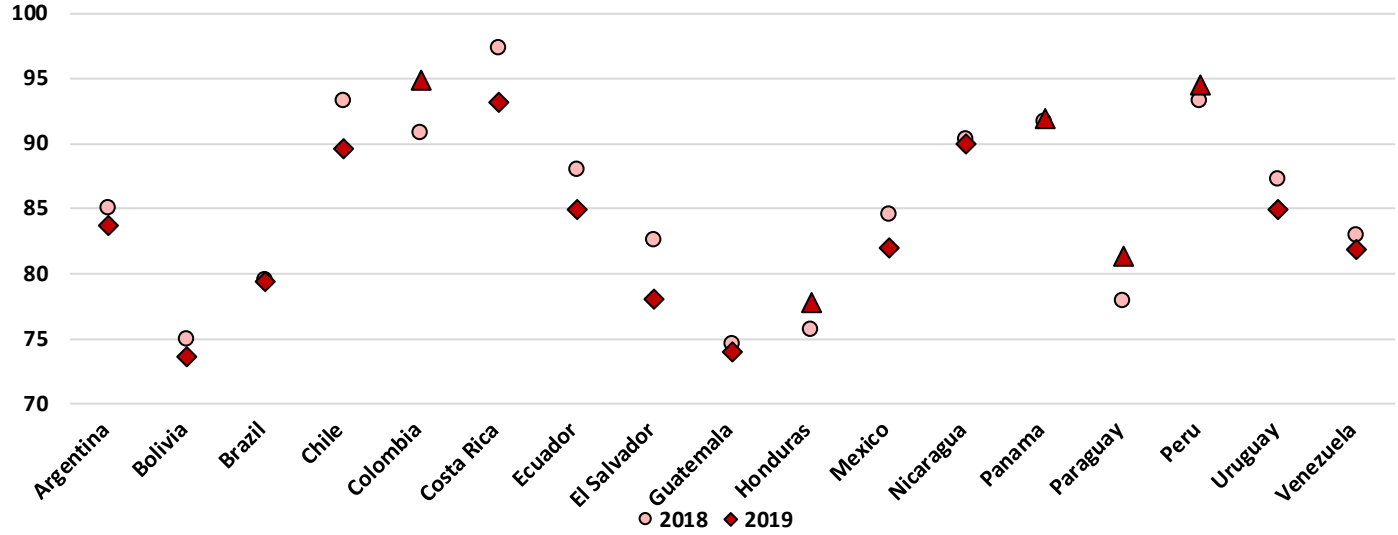
Source: Elaborated by the author. Data obtained from the 2008-2009 and 2017-2018 Global Competitiveness Reports of the World Economic Forum. Data from Bolivia corresponds to the 2008-2009 and 2016-2017 Global Competitiveness Reports because the country was excluded from the following reports for insufficient data availability.

In 2018, WEF introduced the new Global Competitiveness Index 4.0 (GCI 4.0) to respond to significant changes in the global economy and to consider the arrival of the Fourth Industrial Revolution. The GCI 4.0 framework also includes twelve pillars that drive sustainable productivity and centers around resilience, agility, innovation and human capital. The pillars are Institutions; Infrastructure; ICT adoption; Macroeconomic stability; Health; Skills; Product market; Labor market; Financial system; Market size; Business dynamism; and, Innovation capability (WEF, 2018).

According to WEF (2018), the framework adopts a human-centric approach to economic development and urges that public and private policies and new technologies translate into better living conditions. In this regard, the score is of 0 to 100 for which 100 represents the frontier of competitiveness. The GCI 4.0 recommends using the score as a policy target. Further, this approach allows countries not only to measure progress but also to make competitiveness achievable (WEF, 2018). However, the lingering questions are how countries can optimize their performance on competitiveness factors included in the GCI 4.0 to become more resilient to environmental shocks and how states can become better equipped to face technological changes.

The 5th pillar on health measures the health-adjusted life expectancy (HALE), the average number of years a newborn can expect to live in good health. Figure 10.4 shows what appears to be an excellent performance for various Latin American countries. However, the figure also presents scant improvements from one year to another. GCI 4.0 argues that individuals with competitive income increase their opportunities to pay for services and goods that improve their health and overall well-being (WEF, 2018).

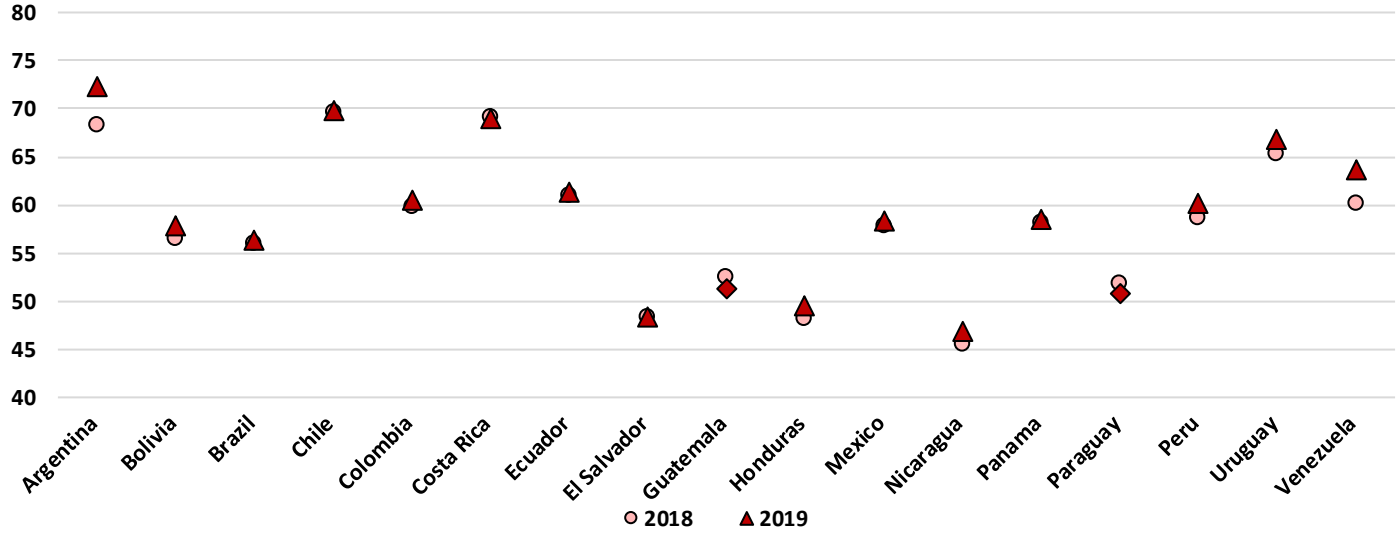
Figure 10.4. 5th Pillar: Health of Latin American Countries.



Source: Elaborated by the author. Data obtained from the 2018 and 2019 Global Competitiveness Index 4.0 reports. The value of the scale is 0 – 100.

The 6th pillar on skills include factors such as developing digital literacy, interpersonal skills, and the ability to think critically and creatively in addition to the quantity and quality of education (WEF, 2018). For GCI 4.0, the foundation of technology and the innovation-driven economy is investment in human capital. However, to equip workers with the right skills, there is a need to improve labor market efficiency to protect their becoming creative change agents. In this regard, the GCI 4.0 urges protecting workers, not jobs, meaning that well-equipped workers can lead the technological changes or adapt to them. Thus, to enhance a country's innovation capacity requires balancing technical integration and human capital investments. Figure 10.5 shows how Latin American countries are scoring in the skills pillar for the years 2018 and 2019. Overall, there is no improvement in this pillar when considering both years. On a scale of 0 to 100, Argentina, Chile, Costa Rica, and Uruguay score the highest in the region but still quite low overall.

Figure 10.5. 6th Pillar: Skills of Latin American Countries

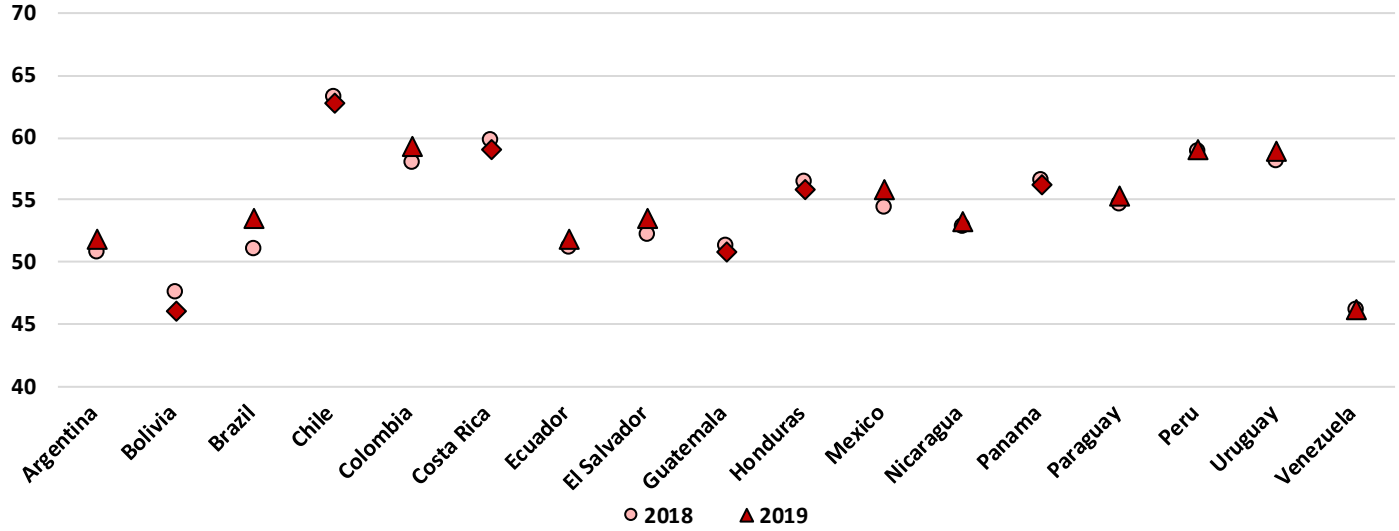


Source: Elaborated by the author. Data obtained from the 2018 and 2019 Global Competitiveness Index 4.0 reports. The value of the scale is 0 – 100.

Lastly, the 8th pillar on labor market includes factors such severance payments for contract terminations; hiring and firing practices for permanent and flexible workers; labor-employer relations; wage determination policies; talent reskill and reallocation policies; protection of international labor standards; regulations for hiring foreign labor talent; mobility; professional management in organizations; payment related to productivity; a ratio of wage and salaried female workers to male workers; and labor tax contributions regarding pension funds or workers insurance funds. In this vein, the GCI 4.0 stresses the importance of government

support for unemployed workers. Current global changes require that governments also preserve a flexible workforce to develop talent adaptability skills to the new working arrangements (WEF, 2019). Figure 10.6 shows a consistent score for both years of measurement but with low performance for most Latin American countries.

Figure 10.6. 8th Pillar: Labor Market of Latin American Countries



Source: Elaborated by the author. Data obtained from the 2018 and 2019 Global Competitiveness Index 4.0 reports. The value of the scale is 0 – 100.

The GCI and the GCI 4.0 Reports draw a picture of the Latin American workforce and the labor market competitiveness of each country. Their analysis and scores obtained in each pillar lend insight into challenges and opportunities for international and Latin American MNCs, presented and discussed next.

10.3. Challenges for MNCs

At the time of the writing this chapter, the COVID-19 global crisis reached Latin America with devastating economic and social impact. It disrupted manufacturing and Latin American subsidiaries of global supply chains. Like the rest of the world, the region encountered mass factories and other non-essential services shutdowns and changes in consumer behaviors. The main consequence is a negative impact on formal and informal employment (WEF, 2020a).

In addition to the challenges of the current health crisis, the analysis of the health pillar uncovers various problems for MNCs to manage talent in the region, as good health is associated with productivity and proves a pre-condition for worker well-being. Then, the question is how companies can contribute to improving their workers' health.

More generally, the health pillar performance suggests a generally stable and consistent performance, but it reports critical gaps in various countries. Moreover, measuring the overall performance in each country might obscure the territorial inequality present in almost all Latin American countries (OECD et al., 2019). According to the Latin American Economic Outlook 2019, the region presents territorial disparities in several dimensions, including health among others. This difference indicates that specific zones of the countries might have high healthcare and education coverage and investment such as in the northern state of Nuevo Leon Mexico. In contrast, other zones of the country, such as in the southern state of Chiapas reports inadequate coverage and investment in the services (OECD et al., 2019). Thus, this singular development characteristic of Latin American countries renders it difficult for MNCs to discern to what extent GTM policies and practices related to the workers' health should be standardized when operating in the region.

While the health sector is today under high stress to protect citizen health, societies expect companies to respond and protect their workers. Some studies and technical reports acknowledge how Latin American societies expect that MNCs contribute to building local social infrastructure—e.g., health, education, living standards—to benefit workers, workers' families and relevant members of the community (e.g., Davila, 2019; OECD et al., 2019). The central assumption here relates to MNCs investing mainly in commodity export and extractive and raw materials sectors (UNCTAD, 2018) that translates into receiving resources from the communities. Thus,

societies expect that MNCs reciprocate by returning other resources to the communities (Davila & Elvira 2012). This tacit assumption can inform MNCs how to respond to such expectations through their GTM policies and practices.

Despite the opening of Latin American economies, the region continues attracting labor-intensive manufacturing jobs that demand traditional HR practices originally designed for low-skill labor. The conventional HR practices are organization-centered, built under the assumptions of control, cost efficiency, short term results, and small jobs (Stone & Deadrick, 2015). It appears that Latin American countries do not have talent development on the national agenda for economic growth. The low scores reported in Figure 10.5 lend support for this argument. Although the region presents other critical challenges such as poverty and violence, it lags behind in supplying talent not only to global companies but also to local ones still internationalizing. Thus, the limited governmental policies on this matter require MNCs to place more attention to providing continuous training to their current and future workforce.

However, to increase talent competitiveness in the region, there is a need to identify and measure the impact of the human capital grand challenges; otherwise, MNCs will overlook new GTM approaches. The low skillset of Latin American workers places a particular challenge for MNCs. While they can move their middle or high-level technical jobs to the region to gain a geographical advantage, they likely encounter a shortage of well-trained workers. Moreover, MNCs also must consider the availability of a talent pool of local managers weighing their hard and soft skills. The literature on GTM stresses the importance of managerial skills on worker motivation and commitment (Schuler, Jackson, & Tarique, 2011).

The concurrent socio-economic crises in the region alter labor markets in particular ways. During the downturns, the income of workers suffers from severe damages, and this implies a detriment in their social protection just as economic inequality increases in the region. It behooves MNCs to analyze first what GTM policies and practices could serve as the foundation for building a robust GTM system given the stage of development in the area. Although a reliable GTM system requires the use of key indicators to measure performance, MNCs should analyze what GTM indicators would be most appropriate given the profile of the region's workforce and labor culture. MNCs might also benefit from deploying the Global Talent Competitiveness Index (INSEAD-Adecco), which also lends insight into GTM indicators.

Still, building a strong GTM system in the region might challenge the standardization approach to GTM, which seeks a certain level of uniformity of talent management policies and practices. Thus, MNCs must identify what GTM policies and practices respond better to the challenges of the local labor markets and comply with the local regulations and societal expectations (Rosenzweig, 2006). In the context of Latin American labor markets, a central question for MNCs is how the globalization influences HR and if this effect will diminish the strength of local work culture.

10.4. Opportunities for MNCs

To understand better global health crises, the WEF created a platform to receive and exchange insights and experiences across public and private sector leaders. The Regional Action Group for Latin America reported that the first response of companies to the COVID-19 crisis centered on taking care of employees to assure business continuity (WEF, 2020b). Then, the focus turned to rendering supply chains more resilient by reducing complexity and increasing local suppliers and manufacturing capacities.

Business leaders acknowledged how advanced technologies assisted their companies in adapting to the current or potential disruptions in supply and demand. Moreover, business leaders also stressed how the digitalization of supply chains supported their decision-making process during the present crises (WEF, 2020b). All these concerns are highly interrelated with the health and skills of talent, competency and resiliency. Thus, in addition to challenges, the talent competitiveness pillars also offer opportunities to better manage GTM.

MNCs now compete successfully for local talent when including benefits packages with health insurance and protection. In Latin America, the demand for health and wellness benefits is increasing. Thus, MNCs responding to such requests will experience a healthier, happier and more productive workforce (MetLife, 2013). In this regard, a recent study report that Multilatinas (Latin American born multinationals) design and place particular importance to benefits packages that protect the employee and family wellness (González, Davila, Casanova, & Liedo, 2017). Moreover, Vale (Brazilian MNC – mining, energy, construction), number six in

the 2019 AmericaEconomía Multilatinas Ranking with +71,000 employees, includes in the employee compensation package medical and dental care, life insurance, private pension fund, personal accident insurance, and educational formation (Vale, 2019).

MNCs bear the knowledge and experience to respect international labor standards because of their home countries' robust institutional environments—effective in enforcing such labor standards. The opportunity here is that these companies can take advantage of their experience and become an influential stakeholder that others are willing to imitate on this matter. Thus, GTM practices would be embedded with international labor standards favoring diversity and equality, with no tolerance for child labor.

Although GCI 4.0 offers a comprehensive guideline to sustain growth, the Report advises that economies need to take a holistic approach to competitiveness as focusing on strengthening one pillar does not compensate for neglecting another (WEF, 2018). Paralleling this argument, one can say that GTM areas could examine the extent to which MNCs policies relate to enhancing business or technological infrastructure and invest in the appropriate worker skills that, in turn, would leverage the company's competitive advantage. The opportunity to invest in a corporate talent development plan is that the company can benefit from educational programs, specialized industrial training, and professional associations experiences to the particular needs of the company.

Orbia (Mexican MNC – diversified conglomerate), number one Multilatina in the 2019 AmericaEconomía Multilatinas' Ranking with +22,000 employees around the world, informs about investing on corporate training and how the company builds employees' innovation skills (Orbia, 2019). The corporate training programs focused on the company-wide transformation initiatives on talent, human-centered innovation, digitization, operational excellence and regeneration of the processes. In terms of innovation skills, the company reports the use of rapid prototyping programs with the guidance of design thinking experts (Orbia, 2019).

Vale (2019) manages its corporate university and provides programs to develop current employees as well as potential workers in the communities in which it operates. The educational programs develop operational technicians, specialists, and leaders. The operational technicians follow a program called Technical Trail that covers each stage of the supply chain within the company. The formation of specialists and leaders include areas of operations, operations support, sustainability, operational excellence and soft skills. The company also requests all employees globally for a series of mandatory training courses mainly related to safety, the Vale Production System, sustainability, ethics and anti-corruption.

Despite the constant high scores of the Chilean economy, the Reports continue highlighting the need to improve the quality of its educational system. If the country wants to move closer to the technological frontier, it needs to rethink the educational system to produce a sufficient pool of skilled workers—e.g., scientists and engineers—to improve technology absorption capability. The same claim can apply to other countries such as Argentina, Brazil, Colombia or Mexico.

The shortage of well-trained workers might also present an opportunity for MNCs to develop local alliances with governmental and educational institutions to develop an integrated and collaborative program for high-skill trained employees. Orbia (2019) reports that in 2019 the company partnered with Harvard Business School and Stanford University for a global leadership development program. ARAUCO (Chilean MNC – Forest), 44 in the 2019 AmericaEconomía Multilatinas Ranking with +18,000 employees invested in an education center that combines education and practical training in the workplace. The center partnered with Duoc UC (Chilean vocational school) to provide technical and professional knowledge to employees and other members of the community (ARAUCO, 2018). In general, such partnerships might increase MNC local legitimacy because of company cooperation efforts to improve the talent competitiveness of members of the community.

Thus, the examples of Latin American companies presented here are suggestive of the global challenges related the shortage of well-trained workers and the stakes of educational initiatives to improve worker skills in a wide range of domains. More generally, the demand for a healthy and educational workforce is indicative of the opportunities for MNCs to participate in the reforms of educational systems to assure their alignment with job demands in new organizations. Moreover, MNCs that compensate for health and educational deficiencies in the workforce can also, in the long-run, contribute to the reduction in inequality in their regions.

10.5. Final Remarks

The macro contextual analysis of talent competitiveness expands the scope of GTM, as HR policies and practices are re-contextualized in terms of country indicators of performance. However, incorporating such context to improve GTM is a challenging endeavor because of the complexity of local labor markets, as shown in the case of Latin America.

Latin American indicators of talent competitiveness do not provide a favorable scenario to attract MNCs. The evidence suggests that the region will continue to have a talent shortage of skilled workers and bottlenecks in labor market efficiency, hence MNCs must step in to compensate for such talent management challenges and develop new organizational capabilities that enable them to acquire, grow and retain talent across their Latin American subsidiaries.

Finally, there is a need to include GTM policies and practices scenarios by demographics as younger workers are entering into the labor force and replacing ageing workers. Another factor to consider is new workforce preferences such as job flexibility or work-life balance, all factors that were not considered as part of talent competitiveness analysis in this chapter but that further studies should address.

References

Al Ariss, A., Cascio, W. F., & Paauwe, J. (2014). Talent management: Current theories and future research directions. *Journal of World Business*, *49*(2), 173-179.

ARAUCO (2018). *2018 Sustainability Report*. Retrieved from https://www.arauco.cl/mo/wp-content/uploads/sites/25/2017/07/REPORTE_SUSTENTABILIDAD_2018_INGLES.pdf.

Davila, A. (2019). Analysis of the MNEs' social practices in Latin America: Implications for development studies research. In P. Lund-Thomsen, M. W. Hansen, and A. Lindgreen (Eds.). *Business and Development Studies: Issues and Perspectives* (pp. 310-328). London: Routledge.

Davila, A. & Elvira, M. M. (2012). Latin American HRM model (pp. 478-493). In C. Brewster and W. Mayrhofer (Eds.). *Handbook of Research in Comparative Human Resource Management*. UK: Edward Elgar Publishing.

González, Y., Davila, A., Casanova, L., & Liedo, T. (2017). *How Multilatinas develop global and local HRM capabilities*. AIB-LAT: Lima, Peru.

Khilji, S. E., Tarique, I., & Schuler, R. S. (2015). Incorporating the macro view in global talent management. *Human Resource Management Review, 25*(3), 236-248.

MetLife (2013). *Latin America employee benefits trends study Brazil | Chile | Mexico*. Retrieved from https://www.metlife.com/assets/institutional/products/benefits-products/LATAM-Study.pdf.

OECD et al. (2019). Latin American Economic Outlook 2019: Development in Transition, *OECD Publishing*, Paris. Retrieved through https://doi.org/10.1787/g2g9ff18-en.

Orbia (2019). *2019 Sustainability Report*. Retrieved from https://www.orbia.com/49b26d/siteassets/6.-sustainability/sustainability-reports/2019/orbia-2019-sustainability-report2.pdf.

Pudelko, M., & Harzing, A. (2007). Country-of-origin, localization, or dominance effect? An empirical investigation of HRM practices in foreign subsidiaries. *Human Resource Management, 46*(4), 535-559.

Rosenzweig, P. (2006). The dual logics behind international human resource management: Pressures for global integration and local responsiveness (pp. 36 - 48). In G. Stahl & I. Björkman (Eds.). *Handbook of research in international human resource management*. Cheltenham: Edward Elgar.

Schuler, R. S., Jackson, S. E., & Tarique, I. (2011). Global talent management and global talent challenges: Strategic opportunities for IHRM. *Journal of World Business, 46*(4), 506-516.

Stone, D. L., & Deadrick, D. L. (2015). Challenges and opportunities affecting the future of human resource management. *Human Resource Management Review, 25*(2), 139-145.

UNCTAD (2018). *World Investment Report, 2018*. Retrieved from http://worldinvestmentreport.unctad.org/world-investment-report-2018/.

Vale (2019). *Sustainability Report 2019*. Retrieved from http://www.vale.com/EN/investors/information-market/annual-reports/sustainability-reports/Sustainability%20Reports/Relatorio_sustentabilidade_vale_2019_alta_en.pdf.

WEF (2020a). COVID-19 risks outlook a preliminary mapping and its implications. Retrieved from https://www.weforum.org/reports/covid-19-risks-outlook-a-preliminary-mapping-and-its-implications.

WEF (2020b). Building resilience in manufacturing and supply systems in the COVID-19.
context and beyond: Latin America perspectives. *Regional Insight*. Retrieved from http://www3.weforum.org/docs/WEF_Resilience_in_manufacturing_and_supply_systems_LATAM_2020.pdf.

WEF (2019). *The Global Competitiveness Report, 2019*. Retrieved from http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf.

WEF (2018). *The Global Competitiveness Report, 2018*. Retrieved from http://www3.weforum.org/docs/GCR2018/05FullReport/TheGlobalCompetitivenessReport2018.pdf.

WEF (2017 – 2018). *The Global Competitiveness Report, 2017 – 2018*. Retrieved from http://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf.

WEF (2008 – 2009). *The Global Competitiveness Report, 2008 – 2009*. Retrieved from http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2008-09.pdf.

Chapter 11
The Rise of Indian Corporates

Manisha Barnwal - Sr. Product Manager, Amazon (Seattle, United States)
Gautam Jain - Ph.D. in Operations Research, Columbia University (New York, United States)

Executive Summary

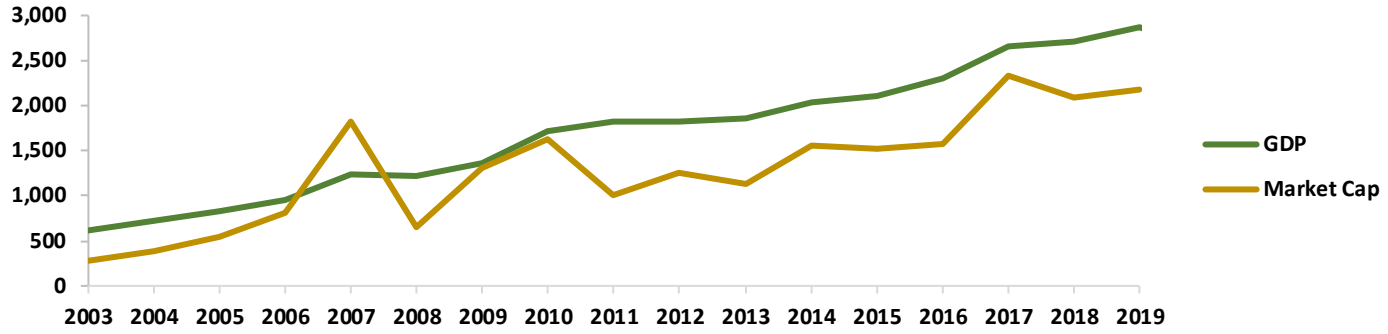
This chapter documents the growth of India's economy as well as its companies in a global context over the past decade and discusses the path for growth in the coming years. India has become the fifth-largest economy in the world, thanks to the rapid growth in the services sector over the past two decades with the advent of the Information Technology (IT) revolution. Today, the sector commands a lion's share of India's economy, contributing 50% of gross domestic product (GDP) on the back of the IT, telecommunication, and banking infrastructure. The telecommunication industry has invested enormously in capacity building and has now started to monetize their infrastructure in place, attracting internet majors such as Facebook to invest in expansions. Indeed, the bulk of India's foreign direct investment (FDI) inflows and exports are tied to its burgeoning services sector.

The services sector is followed by the manufacturing sector with a 25% contribution to the GDP. The government has instituted a slew of policy measures aimed at attracting global manufacturers to "Make in India." Automotive and electronic manufacturing industries have benefitted most from these policy initiatives and have witnessed rapid growth over the past decade. While these industries still lag major players such as China and South Korea, India has a strong homegrown pharmaceutical industry and is the world's largest manufacturer of generic drugs.

The agriculture sector has historically been important to India's population and even today employs almost half of its population. However, the sector contributes only 16% of GDP, leading to low aggregate productivity of the labor force. The government has started emphasizing the use of technology in agriculture with the aim of achieving increased productivity and reduced labor requirement.

As the economy has grown, so have Indian companies. With the economy growing from $620 billion in 2003 to $2.9 trillion in 2019, the market capitalization of listed Indian companies has grown from $279 billion to $2.2 trillion in the same period (see Figure 11.1). In 2020, India is home to seven Fortune Global 500 companies, ranging from diversified conglomerates to banking to oil and gas. Most are family- or state-owned akin to other emerging markets multinational companies (MNCs). These companies have been increasing their focus on innovation and digitization, underscoring India's overall growth trajectory. Recent policy measures have drastically improved the ease of doing business in India leading to a vibrant start-up ecosystem. Currently, India is home to more than 20,000 start-ups and 6 out of the top 50 start-up unicorns.

Figure 11.1. India's GDP and Market Capitalization of Listed Companies (USD bn).



Source: IMF WEO Database October 2020 (https://www.imf.org/en/Publications/WEO/weo-database/2020/October), World Bank (https://data.worldbank.org/indicator/CM.MKT.LCAP.CD?locations=IN); Accessed December 2020.

11.1. Growing Role in the Global Economy

As the economy has grown, so have Indian companies. With the economy growing from $620 billion in 2003 to $2.9 trillion in 2019, the market capitalization of listed Indian companies has grown from $279 billion to $2.2 trillion in the same period (see Figure 6.1). In 2020, India is home to seven Fortune Global 500 companies, ranging from diversified conglomerates to banking to oil and gas. Most are family- or state-owned (Ganguly & Das, 2017).

India is home to the second-largest population in the world and therein lies its key strength as well as its key challenge. The large working-age population serves as an enormous labor pool and one of the largest markets for a range of businesses, which was a major reason why MNCs wanted to expand in India in the first place. On the flip side, in terms of GDP per capita, India is ranked 142, despite being the world's fifth-largest economy. Almost half of the Indian population is reliant on agriculture, which is a key reason for the low GDP per capita. In the last decade, the government has instituted several policies to promote urbanization and a shift to manufacturing from agriculture. These policies, if successful, will lift millions of Indians out of poverty and set the stage for India's economy to grow at a faster pace and attract increased investments (Singh et al., 2020).

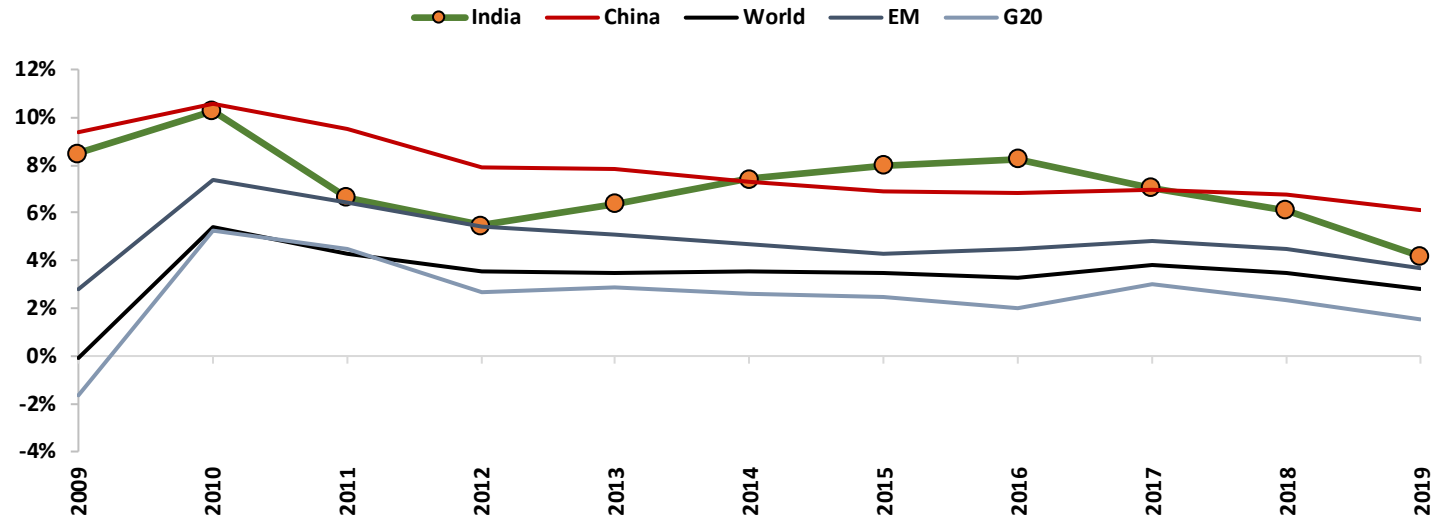
India is expected to contribute strongly to the growth of global output in the next decade. The high growth of India's economy is led by the rapid expansion of its services sector, which in turn is driven by productivity gains, strong investments, and increasing exports (Gupta & Bloom, 2018). This section analyzes the positioning of India within the global economy, its growth drivers, and its future growth potential.

A. GDP Growth and Its Drivers

During the past decade from 2010 to 2019, India grew at a compounded annual growth rate (CAGR) of 7.0%, second only to China's growth of 7.7% but easily outperforming overall emerging markets, G20, and World growth (see Figure 11.2). GDP per capita has also grown strongly with an average rate of 5.5% a year over the past decade. India's economic growth is driven by a large consumer base comprising the second largest population in the world, strong investments, increasing exports, and productivity gains (Gupta and Bloom, 2018).

Despite the growth, India's GDP per capita continues to be quite low in comparison with even its BRIC peers ($2,104 vs. $8,717 in Brazil, $10,261 in China, and $11,585 in Russia in 2019). According to the World Bank, India needs to grow at a rate of 8% or higher for the next three decades to bring the income of at least 50 percent of Indians at par with the global middle class. Thus, grassroots level reforms by the government are necessary to include this large segment of the population into its workforce, in order for businesses to tap into the massive labor resource that India has to offer (Kapoor and Ahmed, 2020). Nevertheless, India's strong growth along with the large consumer market and workforce that the country offers has continued to attract investments, including FDI, as we discuss in the next section.

Figure 11.2. Annual Real GDP Growth (%)

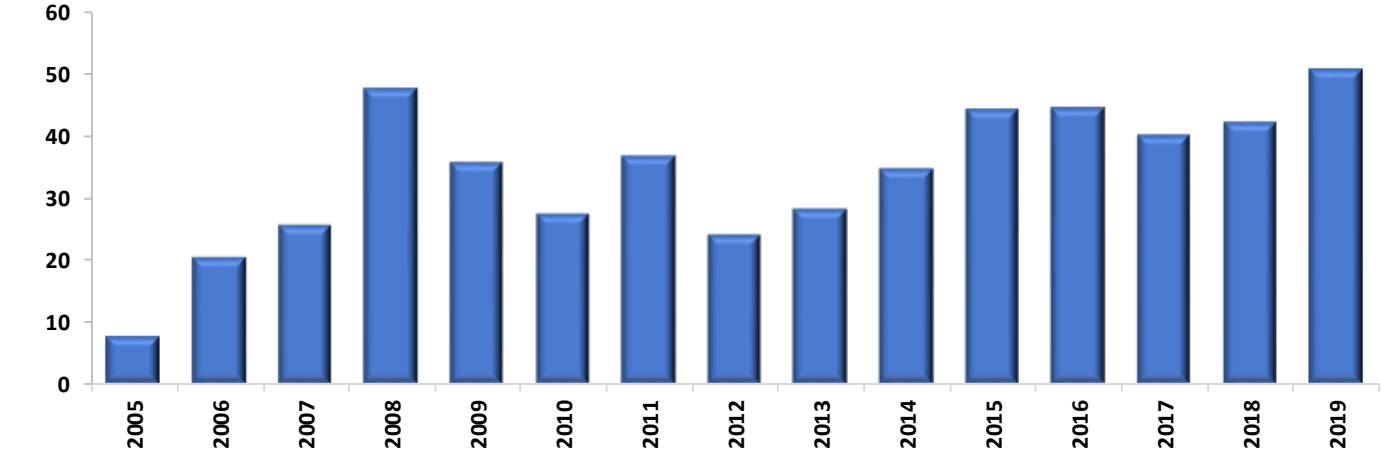


Source: IMF WEO Database October 2020 (https://www.imf.org/en/Publications/WEO/weo-database/2020/October); Accessed December 2020.

B. FDI and Trade as Key Growth Drivers

Based on OECD data, after slowing down for a couple of years following the global financial crisis of 2008, FDI flow to India has grown rapidly with a CAGR of 7.1% during 2011-19, crossing $50 billion in 2019 (see Figure 11.3). FDI has served as an important source of economic growth for India by providing business, technological, and non-debt financial resources to the country. India has been among the top ten FDI destination countries globally in the last six years, owing to the availability of low-cost resources such as land, a large pool of skilled workers, a growing workforce, and strong consumption (OECD, 2019).

Figure 11.3. Annual Inward FDI Flow to India (USD bn)



Source: OECD (https://data.oecd.org/fdi/fdi-flows.htm#indicator-chart); Accessed December 2020.

The government has taken several measures to attract foreign investments and meet its FDI inflow target of $100 billion by 2022 (IBEF, 2020b). The government has relaxed FDI norms in sectors including defense manufacturing, digital, oil refineries, telecom, power exchanges, and stock exchanges, and eased business regulations. India's ranking in Ease of Doing Business improved by 67 positions between 2016 and 2019 earning it a place among the top ten improvers for three consecutive years (World Bank, 2019). Not surprisingly, this has paved the path for India to develop a vibrant start-up ecosystem, which has attracted many international investors.

Strong international capital inflows, as outlined above, have helped integrate India into the global economy, which can be observed by the country's increased external trade. India's exports- and imports-to-GDP ratios have grown considerably and are now comparable to China. India has seen a two-fold growth in its exports over the last decade, placing it among the 20 largest traders of goods and services globally (World Trade Organization, 2019). The five largest trading partners of India (with trade balances denoted in parentheses) are China (-$51.7 billion), USA ($22.9 billion), UAE ($10.8 billion), Saudi Arabia (-$13.9 billion), and Switzerland (-18.3 billion), as per the official statistics from the government (Govt. of India, 2020). In terms of total imports, India is the 11th largest importer in the world. However, India's rank for exports per capita (rank 102) and imports per capita (rank 103) remain low (OEC, 2020), indicative of future growth potential.

The high growth in GDP, along with a 66% share of working-age population (OECD, 2020), which is significantly higher than its peers, suggest that India's positioning in the world economy could continue to grow and contribute strongly to the growth of world output in the next decade. Though the economy has taken a hit in 2020 and is projected to contract by 8.8% due to COVID-19, India's growth is expected to bounce back to 9.0% in 2021 as per Bloomberg consensus growth forecasts. The country's growth in coming years is expected to be led by the rapid expansion of its services sector and the movement towards building a digital economy. Growth in the services sector and increased focus on digitization are expected to spread to the manufacturing and agricultural sectors. We discuss implications of this in the subsequent sections, as well as provide sector-specific analyses of the current trends and outlook by sector.

11.2. Agriculture Continues to Play a Significant Role

Agriculture and its dependent industries employ the largest part of India's workforce. The sector employs nearly 42% of its working population, providing sustenance to two-thirds of India's population that continues to reside in rural areas. Agriculture plays an important role in Indian economics, politics, and society, and is supported by three competitive advantages: 180 million hectares of arable land, climatic conditions suitable for cultivation of various crops, and a large proportion of the working-age population in India.

Among BRIC countries, the agriculture sector makes up the highest share of GDP in the case of India. According to the Department of Commerce (DoC, 2020), the agriculture sector contributed $22 billion in the 2019-20 fiscal year to the country's exports (7% of total exports), making India an important player in the global agricultural landscape. India is the world's largest producer of milk, pulses, and spices, and has the world's largest cattle herd (buffaloes), as well as the largest area under wheat, rice, and cotton cultivation. It is the second-largest producer of rice, wheat, cotton, sugarcane, farmed fish, sheep and goat meat, fruit, vegetables, and tea (World Bank, 2020b). India is the largest market for tractors globally and ranks second in food production behind China.

The key businesses in India's agriculture sector include agriculture machinery, irrigation, Farming-as-a-Service (FaaS), food processing, and cold-chain. The food processing sector is one of the fastest-growing sectors in India with an annual growth rate of 8%. The sector is expected to grow at a faster rate due to improvements in production capacity and changing consumer preferences driven by urbanization and rising income levels. The top three Indian companies based on their market capitalization in the sector are Bombay Burmah, Kaveri Seed, and Goodricke Group (Money Control, 2020).

The government has launched initiatives to promote investment, export, and innovation in the agriculture sector. These include allowing 100 percent FDI in marketing and e-commerce of food products, providing financial assistance for transport and marketing of agriculture products, approving policies aimed at increasing India's agricultural exports to $60 billion by 2022, and launching the AGRI UDAAN[51] program to mentor Agri-tech start-ups. There are more than 450 Agri-tech start-ups, growing at a rate of 25% year-on-year (as of 2019). Under AGRI-UDAAN, 37% of start-ups in the sector have received funding of $220K.

Although the sector is of tremendous importance to India's workforce, it contributes only 16% to the overall GDP. Indeed, even as its relative contribution to GDP continues to shrink, the agriculture sector is still expected to exhibit strong growth, thus

[51] AGRI UDAAN is a food and agribusiness accelerator program that helps start-ups to scale up via mentoring, networking, and investor pitching.

continuing to play a major role in employment. The current growth of the agriculture sector is primarily driven by policy interventions promoting investment and technology adoption. These policies have propelled India to become a major global player in the sector and provide the basis for its future growth. As a fallout of the rapid adoption of technology, we expect that a lower proportion of the population will continue to depend on the sector for livelihood. We see this development as being the impetus for the secondary sector, which we discuss in the following section.

11.3. Growing Footprint in Manufacturing

The manufacturing (secondary) sector contributes 26% of India's GDP and employs 25% of its working population. The government aims to make India a $5 trillion economy by 2024-25. The ambitious plan requires increased investments in the manufacturing sector since it provides the backbone for the growth of the overall economy. As a result, the government has taken several initiatives such as 'Make in India' to promote investments in the manufacturing sector that contributes to more than 50 percent of industrial gross value added (GVA).

The current political climate in India favors high-tech manufacturing, a space where India has been lagging for years. The government has now started taking steps to boost local electronics manufacturing by aiming to attract businesses diversifying away from China, the global leader in electronics. The government launched the National Policy on Electronics in 2019 to boost manufacturing in the electronics industry, particularly targeting mobile phones and associated components. Also, the Production Linked Incentive (PLI) scheme launched in 2020 provides incentives for manufacturers to the tune of up to 6% of the incremental sales they would achieve in India owing to their operational expansion. Major international electronics manufacturers including Foxconn, Samsung, and Pegatron have capitalized on this initiative and are in the final stages of discussion to expand their manufacturing in India (Aryan, 2020). The PLI scheme is a much-needed boost to India's high-tech manufacturing, which goes hand-in-hand with the development of the services sector especially in the global drive towards automation.

India's strides in boosting the manufacturing sector face a threat from the increase in automation globally. Cheap labor, which India offers in abundance, takes a backseat to technological capability with the advent of automation. While India remains a major player in the Information Technology space (as discussed in the subsequent section), the country faces a dearth of homegrown cutting-edge automation technology providers, an issue that India should aim to incorporate into its manufacturing policies. Additionally, India needs to build infrastructure to support its energy consumption required for the growth of the manufacturing sector. While India is the third-largest energy consumer in the world after the US and China, its oil production has been the lowest among the major economies and has continued to exhibit a declining trend since 2014.

Over the past ten years, automobile and pharmaceutical industries were major growth drivers for the overall economy, receiving the highest shares of FDI inflow of 27% and 18%, respectively. We discuss these two pivotal industries in detail in the remainder of the section.

A. Growing Automobile Sector

As of 2020, India is the fifth-largest producer of motor vehicles in the world, with car production growing at a CAGR of 6.9% during 2016-20 (prior to COVID-19). The growth in the automobile sector in India can be attributed to three primary factors: favorable macroeconomics and demographics trend due to the rise in the middle class and young population; cost advantages due to availability of low-cost land and cheap labor; and government support including establishing R&D centers to promote innovation and growth in the industry. The largest domestic players in the industry include Tata Motors (a Global Fortune 500 company; see box below), Maruti Suzuki, and Hero MotoCorp.

While India has witnessed high growth in the domestic auto sector over the past decade, the country contributes less than 1% to global exports. This stands in contrast to its peers such as China (3%), Mexico (7%), and South Korea (4.5%). India also lags in terms of innovation as the productivity level of India's auto sector is less than one-third of that of China, according to World Bank data (World Bank, 2017). India, thus, has a long way to go before it can compete in the global market.

Tata Motors

Automotive Manufacturing

Tata Motors Limited is an Indian automobile manufacturing company that offers an extensive range of passenger, commercial, and defense vehicles. Major competitors include Daimler AG, Toyota Motors, Honda, Ford, Volkswagen, and General Motors.

Internationalization: Tata Motors has acquired various companies to build its presence in over 175 countries with a worldwide network of over 6,600 customer touchpoints and it exports to 60+ countries.

Innovation: Tata Motors has R&D centers in the UK, Italy, India, and South Korea. Tata Motors continues to upgrade its vehicles through enhanced exteriors, improved interiors, and new technologies and is also making advances in electric vehicles through its Project Vector, an advanced, connected, autonomy-ready electric vehicle concept.

Tata Group: Tata Motors is a part of Tata Group, an Indian conglomerate founded in 1868. Tata Group comprises 28 public listed companies, with a market capitalization of over $160 billion as of March 31, 2019. The significant subsidiaries of the conglomerate also include:

Tata Steel: One of the top producing steel companies in the world and one of the few whose operations are fully integrated, from mining to manufacturing to marketing. Currently, Tata Steel has operations in 26 countries and a commercial presence in over 50. In FY 2018-19, Tata Steel had total revenue of $21 billion with a y-o-y growth rate of 27%.

Tata Consultancy Services: A multinational IT services and consulting company that operates in 149 locations across 46 countries. TCS provides a variety of services operating in segments such as Banking, Finance, Insurance, Manufacturing, Retail, Communication, Media. In FY 2019-20, TCS had a generated consolidated revenue of $22 billion and a compound annual growth rate of 7.3%.

Tata CliQ: An e-commerce company launched in 2016 offering products such as Electronics, Fashion, Footwear, and Accessories. In FY 2018-19, Tata Unistore Ltd, which owns Tata CliQ, had total revenue of $1.5 billion, a growth of more than double its previous year, but net losses increased as well.

Sustainability & Social Responsibility: Tata Group is recognized for its public good in health, education, environment, and empowerment. Their initiative "Tata engage" contributes to over a million volunteering hours annually and is recognized as one of the top 10 global volunteering programs by the International Association for Volunteer Effort. 66% equity of Tata Sons, principal investment holding company and promoter of Tata companies, is held by the Tata Trusts which contributes its dividends to philanthropic work.

Fortune Global 500 2020: 337th

Revenue (2020):
US$ 37,242 million

Assets (2020):
US$ 42,602 million

Net Profit (2020):
US$ -1,703 million

HQ: Mumbai, India

Foundation year: 1945

Employees: 77,990

Ownership: Public; 36.7% held by Tata Group

Industry: Motor Vehicles & Parts

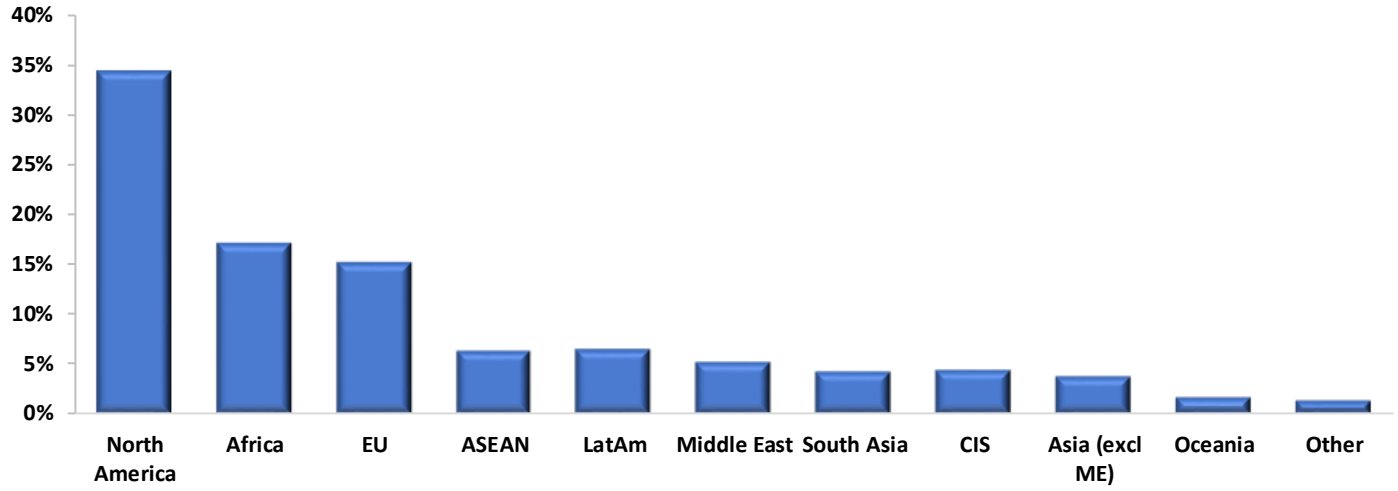
Source: Authors based on data and information from Capital IQ, 2020 Fortune Global 500, Tata Group website, and Tata Motors Annual Report 2018-19; Accessed August 2020.

B. A Rising Star in the Pharmaceutical Sector

The pharmaceutical industry in India is instrumental to global healthcare with 50% of global vaccines and 20% of the world's exports in generic medicines coming from the country, making India the world's largest provider of generic drugs. The aggregate value of India's pharmaceutical exports has grown by a CAGR of 10% during 2012-19 led by the demand from developed markets (Figure 11.4). North America is the largest export destination for the Indian pharmaceutical industry, consuming over 34% of tot al exports. Over the last decade, pharmaceutical companies have invested in automation and workforce training to improve quality standards to comply with US FDA norms. Also, companies have increased their emphasis on R&D to launch niche and complex drugs over the past few years.

The pharmaceutical industry in India is highly competitive, with more than 200 companies thriving in the space. The leading companies have adopted a broad spectrum of red ocean strategies to sustain growth. Sun Pharmaceutical Industries Ltd. aims to achieve cost leadership through vertical integration, while Dr. Reddy's Laboratories is planning to invest up to $300 million in FY 2020 on R&D to scale up their product portfolio of complex drugs. A few companies including Lupin have looked at expanding in fore ign markets including in Latin America, Russia, and other Eastern European countries.

Figure 11.4. India's Pharmaceutical Exports Breakdown by Region (%), FY 2019-20



Source: Department of Commerce (https://commerce.gov.in/about-us/divisions/export-products-division/export-products-pharmaceuticals/); Accessed July 2020.

The Indian pharmaceutical industry has been impacted by COVID-19 in several ways. The industry saw a year-on-year (y-o-y) revenue decline of 11.7% in April 2020, due to the supply and demand disruptions amid COVID-19 (TPL, 2020). The industry suffered from upstream disruptions since 80% of raw materials are imported from Chinese chemical producers (Times of India, June 2020). There was, however, a jump in sales of respiratory (23%), cardiac (20%), and anti-diabetic (18%) therapy drugs due to pre-emptive purchases and the nature of coronavirus infections (Statista, 2020b). India rose to become the second-largest manufacturer of Personal Protective Equipment (PPE), with an average production of 150,000 PPE kits per day. This is a surprising development as India was producing zero PPE kits domestically at the onset of the pandemic in January 2020 (Times of India, May 2020). As of July 2020, seven Indian pharmaceutical companies were working to develop a coronavirus vaccine (Press Trust of India, 2020). India's Cipla Ltd., Dr. Reddy's Laboratories Ltd., and Jubilant Generics signed an agreement with US-based Gilead Sciences in May 2020 to develop the potential COVID-19 drug Remdesivir and export it to 127 countries. The Covid-19 pandemic showcases the resilience and innovation in India's pharmaceutical sector.

11.4. Moving Towards Services

Contributing more than 50% of GDP in 2019, the services sector[52] has grown steadily at a CAGR of 8% over the last decade and continues to play a critical role in India's economic development, as per the World Bank. As of 2019, the sector employed 32% of the country's total working population. Exports by the services sector in India have doubled over the last decade, now contributing to more than a third of the country's exports. The share of IT (42%) in India's services exports is significantly higher than other emerging economies (China 13%, Brazil 6%, and Russia 8%), underscoring the sector's importance as the main driver of India's economic boom over the past couple of decades (Joumard et al., 2020). India accounted for 3.5% of world services trade in 2018, led by the Information and Communications Technology sector (ICT). Globally, India is the second-largest exporter of ICT behind Ireland and the leading exporter of IT services among developing economies[53] (WITS, 2018). The persistent growth in the services and IT sector has attracted FDI inflows of $163 billion between April 2000 to March 2020 according to the Department for Promotion of Industry and Internal Trade (DPIIT, 2020), making it the largest contributor with a 35% share of the total FDI inflows to India in this period. In terms of international presence, Indian MNCs have established operations in 80 countries through their 1,000 global delivery centers as per the Indian Brand Equity Foundation (IBEF, 2020b, August 24). Major players include Tata Consultancy Services (TCS), Infosys, Wipro, and HCL. IBEF also states that India contributes to 75% of the global digital talent, making the country a leading digital capability hub.

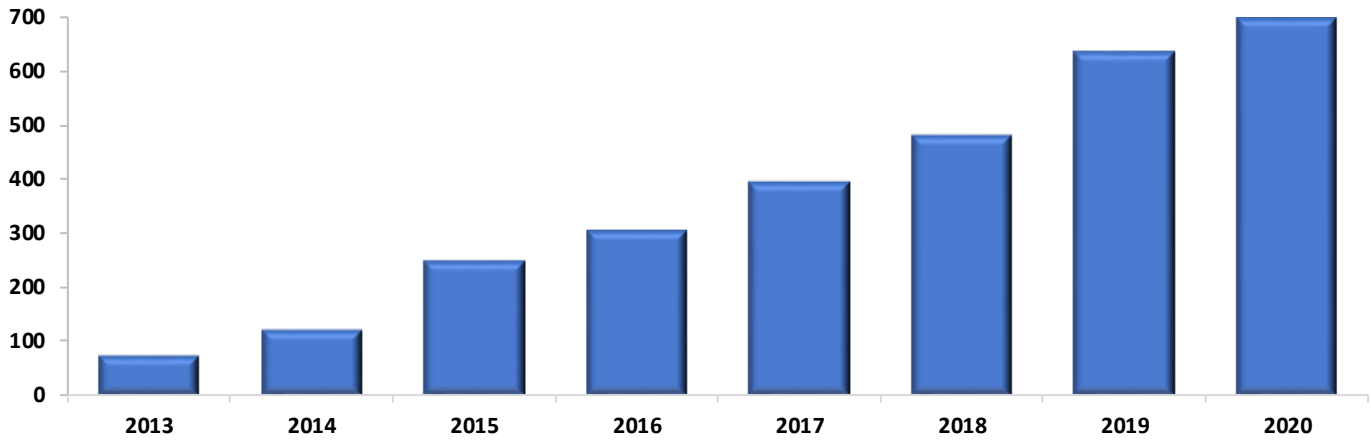
[52] Comprises of wholesale and retail trade (including hotels and restaurants), transport, government, financial, professional, and personal services such as education, health care, and real estate services

[53] Measured in BoP, current US$.

A. Rapid Growth in Telecommunications

India has emerged as the second-largest telecommunications market worldwide based on the number of telephone users, over the last decade (IBEF, 2020a). Mobile penetration has grown rapidly from 29% in 2008 to 84% in 2019 (World Bank, 2020a), with the number of smartphone users jumping to almost 700 million in 2020 (Figure 11.5). Monthly internet subscribers rose by a CAGR of 46% during 2006-19[54], driven by exceptionally low cost of data due to high competition and availability of affordable smartphones (Cable, 2020; World Bank, 2020a). With a monthly internet growth rate of 45%, rural India provides tremendous opportunities for telecom operators (Press Trust of India, 2019). Indeed, telecom companies have increasingly invested in infrastructure in rural regions to provide wider network coverage and higher internet speeds. As of 2018, there were already 560 million active internet subscribers in India, second only to China (McKinsey, March 2019). Further, McKinsey estimates that internet users in India will grow by 40% to between 750 million and 800 million by 2023.

Figure 11.5. Number of Smartphone Users in India (in millions)



Source: Statista (https://www.statista.com/statistics/467163/forecast-of-smartphone-users-in-india/); Accessed December 2020.

The telecom industry is highly competitive and is dominated by four companies: Reliance Jio (see box below), Vodafone-Idea (in which the British company, Vodafone, owns a 45% stake), Bharti Airtel, and the state-owned BSNL. Strong competition has led to innovation and growth in the sector. Reliance Jio was ranked 17th in the 2018 Fast Company ranking of "50 Most Innovative Companies" in the world (Fast Company, 2018). Among the major events that have reinforced the sector are: Government of India relaxed norms to allow 100 percent FDI in Bharti Airtel in January 2020; and Vodafone India and Idea Cellular merged to form Vodafone-Idea to become the largest telecom operator in the country.

Indian telecom giants have started to monetize their infrastructure investments by attracting large investors. For instance, Facebook acquired a $5.7 billion stake in Reliance Jio in April 2020 (see box below) to increase its penetration in the Indian market by expanding its offering (CNN, 2020). Deals such as these suggest that the Indian telecom sector is now poised to reap returns from their massive investments and will continue to attract FDI.

[54] Mobile cellular telephone subscriptions refer to subscriptions to a public mobile telephone service that provide access to PSTN (Public Switched Telephone Network) using cellular technology

Reliance Industries

Multinational Conglomerate

Reliance Industries Limited (RIL) began its activities in the retail sector in India and later expanded into the energy sector, including refining and marketing, petrochemicals, and exploration and production. In 2015, RIL launched their telecom operator, Reliance Jio, which leveraged the growing digital economy in India and is now the #1 ranked mobile telecom operator in India based on both Adjusted Gross Revenue and subscribers. RIL is one of the highest-earning companies in India with y-o-y revenue growth of 5.4% in FY 2019-20.

Refining and Marketing: Refining and Marketing (R&M) contributes 51% of the revenue with $52 bn in FY 2019-20. R&M had a decline of 1.6% y-o-y in revenue and 6.1% in earnings due to a fall in crude prices and weaker product margins. Despite the general global downturn and low oil demand, RIL R&M continues to outperform Singapore complex margins. Major competitors include Indian Oil, Sumitomo Chemical, Vedanta, Formoso Chemical & Fibre, and Oil Refineries.

Retail: With a revenue of $21 billion in FY 2019-20, Reliance Retail contributes to 21% of the company's revenue. The sector is growing at 24.8% y-o-y and has the largest customer franchise, catering to 125 million customers. Its high growth is driven by the expansion of stores across geography, improvement of store throughput, and optimization in product mix. In 2015-16, RIL launched an e-commerce platform ajio.com and in 2020, integrated JioMart with WhatsApp opening further growth opportunities through omnichannel, a cross-channel content strategy. Reliance Retail faces strong competition from international players such as Walmart and Amazon and domestic retailers including DMart, V-Mart, METRO, and Future Group.

Digital Services: In FY 2019-20, Digital services contributed 9% of the company's revenue, amounting to $9 billion. Reliance Jio is rolling out its wireline services across homes and enterprises and JioPhone has successfully transitioned over 100 million to 4G, laying a strong foundation for offering platform-based digital services. Reliance Jio has joined investment partnerships with Facebook ($5.7 billion) and Google ($4.5 billion) working to accelerate India's development. Recently, they launched JioMeet, a video conferencing app.

Petrochemicals: Petrochemicals contributed $19 billion or 19% of revenue, which was a drop of 15.6% y-o-y. This decline was due to lower price realizations with weaker demand and lower product margins caused by trade barriers, excess capacities, and global uncertainty. RIL owns and operates one of the most integrated petrochemical facilities globally.

Innovation: RIL spent $339 million on research and development in 2019 and was granted 140 patents. RIL's R&D teams are working on bio-innovations to increase agricultural productivity and on processes to convert plastics and other wastes into stable oil that can be reprocessed.

Reliance Industries Limited

Fortune Global 500 2020: 96th

Revenue (2020):
US$ 86,270 million

Assets (2020):
US$ 154,196 million

Net Profit (2020):
US$ 5,625 million

HQ: Mumbai, India

Foundation year: 1973

Employees: 195,618

Ownership: Public; 51.45% owned by Private institutions (incl. 11.3% by Reliance Holdings)

Industry: Oil Refining and Marketing, Retail, Petrochemicals, Digital Services

Source: Authors based on data and information from Capital IQ, 2020 Fortune Global 500, and 2019 Reliance Industries Annual Report; Accessed August 2020

B. Digitization in Banking

The growth in internet use and infrastructure along with the government's drive to make India a cashless economy has transformed the banking sector in the country. The number of digital payments grew ten-fold from 202 million per month in 2013-14 to 2.03 billion per month in 2017-18 (McKinsey, March 2019). More than 542 banks are authorized to provide mobile banking services, as of January 2020.

Over the past decade, the government launched several initiatives to increase digital transactions in India. Firstly, in November 2016, the government announced demonetization[55] that rendered 86% of cash circulating in the economy invalid overnight, prompting businesses and consumers to shift to electronic payment services. As a result, the number of digital payments per capita grew by 100% and the value of mobile payments by 224% in 2016-17. Secondly, focused on financial inclusion, the government launched the '*Pradhan Mantri Jan Dhan*' scheme that aims to provide banking services for every household in the country. Under the scheme, 373 million new accounts were opened, as of August 2019.

These measures saw a boom in the cashless payments space with Paytm (see box below), the largest player attracting investments from international investors including Alibaba and Softbank. While Covid-19 has further accelerated the growth of

[55] In a bid to curtail the shadow economy and reduce the use of illicit and counterfeit cash, the Government of India announced the demonetization of all ₹500 and ₹1,000 banknotes in November 2016.

cashless payments, the total digital payments in India are projected to total $74 billion in 2020, far behind China's $2.3 trillion suggesting that this sector has ample room for investments and growth in the future (Statista, 2020a).

Additionally, the government has taken various steps to facilitate the overall growth of the banking sector. For instance, to strengthen public balance sheets, the government promoted the consolidation of public banks through a series of mergers, reducing their number from 27 to 12 in 2017 and lowered the government's share threshold below 51%. Other factors driving growth in the banking sector are an increase in the skilled working population, growing disposable income, and international expansion as banks set up their branches overseas. The largest banking institution is the State Bank of India (SBI), which we describe in detail in the box below. As part of its digital initiative, SBI has launched digital branches in several locations throughout the country.

Paytm

Financial Technology Start-up

Paytm is an Indian e-commerce payment system and financial technology start-up that offers a one-stop shop for payments-related services and financial solutions to consumers, offline merchants, and online platforms. Paytm is owned by One97 Communications Ltd. Major competitors include domestic players like FreeCharge, Razorpay, MobiKwik, and Flipkart along with USA's PayPal and China's Ant Financial.

Development: Paytm started as an online mobile recharge and bill payment platform and has developed into allowing its users to make a variety of transactions with over 250 million registered users. In 2016, the Indian Government demonetized the ₹500 and ₹1,000 banknotes which resulted in a large cash shortage. During this disruption, digital banking and payments had a sharp rise, creating a huge market for Paytm. Paytm's customer base grew from 125 million to 185 million in 3 months. Paytm is working to bring financial inclusion across India.

Funding: Paytm started with an initial $2 million investment by its founder. Over the years, Paytm has received financial backing and investments from Ratan Tata, USA's Sapphire Ventures and Berkshire Hathaway, China's Alibaba (25% share) , Taiwan's Mountain Capital, and Japan's SoftBank. In 2019, Paytm raised $1 billion in a financing round.

Services: Paytm's subsidiary, Paytm Money, has become India's biggest investment platform. In joint ownership with One97 Communications, Paytm Payments Bank has become the country's largest digital bank with over 58 million account holders, and Paytm First Games offers gaming and home entertainment options to millions of users. By 2020, Paytm plans on tapping the loan market and disbursing small loans to 500 million people. Paytm is also in the process of launching a chat App.

Internationalization: Paytm has a Toronto-based tech team and customers can top up their balances with cash at Canada Post. Paytm currently has 100,000 Canadian customers.

COVID: Paytm launched several initiatives to ensure safe and contactless payments. The Paytm app's user interface was revamped with a "Stay at Home Essential Payments" feature. Paytm also incorporating contactless ticket buying facilities for state-run local buses, "scan to order" food ordering at eateries, and may work with IOCL to enable digital transactions at fuel stations.

Valuation:
US$ 16 billion

Revenue (2020):
US$ 442.6 million (3319 Crore)

Net Profit (2020):
loss of US$ 4.9 million (36.8 crore)

HQ: Uttar Pradesh, India

Foundation year: 2010

Employees: 12,000

Ownership: Private

Industry: Financial Technology

Source: Authors based on data and information from Capital IQ, 2020 Fortune Global 500, and Paytm Annual Report 2018-19, Accessed August 2020.

State Bank of India

The Banker to Every Indian

State Bank of India (SBI) is an Indian financial services multinational with the Government of India the majority shareholder. SBI provides various banking products and services to individuals, commercial enterprises, corporates, public bodies, and institutional customers. The company operates in personal banking, corporate banking, investment banking, and other non-banking sectors including insurance, loans, and wealth management.

SBI is the largest nationalized bank in India, occupying 23% of the market share in assets and 25% of the total loan and deposits market. SBI faces competition from private players such as HDFC, ICICI, Axis, Yes Bank, and Kotak in the domestic market and from international players including Sumitomo Mitsui Financial, China CITIC Bank H, China Minsheng Banking H, Shanghai Pudong Dev Bank A, and China's Industrial Bank A.

Digital initiatives: SBI in partnership with Accenture launched six digital branches across India as a move towards the next generation of banking for their growing smartphone and internet customer base. The digital branches feature a multitude of advanced capabilities including instant account opening, instant loan approvals, and remote advisors available over video conferencing. In July 2020, SBI launched Pension Seva, a website for people who have their pension account in the bank to increase accessibility.

Merger & Acquisitions: In 2008, the State Bank of Saurashtra merged with SBI and in 2009, SBI absorbed the State Bank of Indore. Currently, SBI is in the process of merging five associate banks along with Bharatiya Mahila Bank. Following the merger, SBI is expected to become a lender of global proportions with an asset base of over $555 billion, 22,500 branches, and 58,000 ATMs. This merger is a step further into the consolidation of the banking sector.

Internationalization: SBI, with over 208 overseas offices spread over 34 countries, has the largest international presence among Indian Banks.

Fortune Global 500 2020: 221st

Revenue (2020):
US$ 51,091 million

Assets (2020):
US$ 555,132 million

Net Profit (2020):
US$ 2,788 million

HQ: Mumbai, India

Foundation year: 1955

Employees: 249,448

Ownership: Public; 57.11% government controlled

Industry: Commercial banking and savings banking

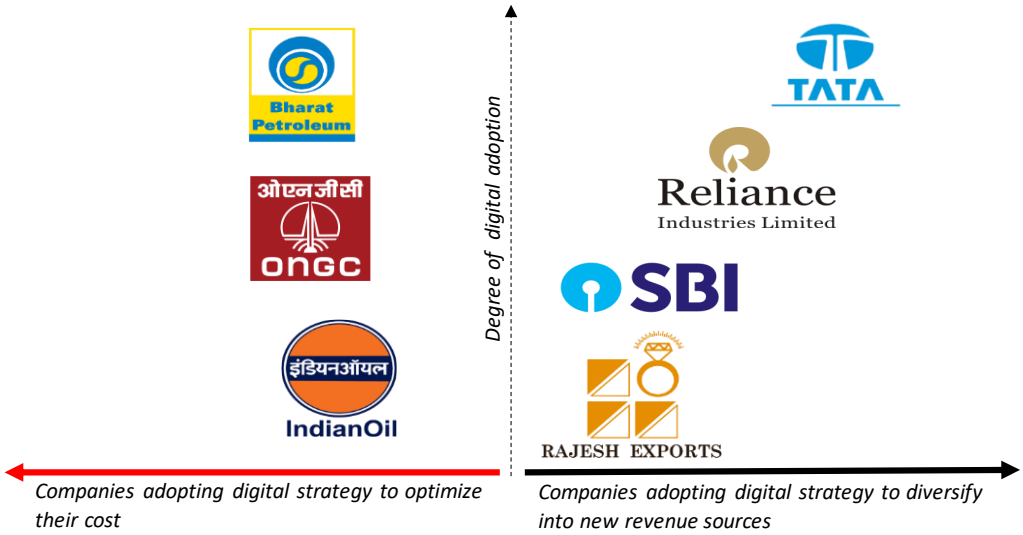
Source: Authors based on data and information from Capital IQ, 2020 Fortune Global 500, and SBI Annual Report 2018-19, Accessed August 2020.

11.5. Innovation and Digitization in Indian Companies

As of 2020, seven Indian companies are on the Fortune Global 500 list. These companies represent diversified industries ranging from oil and gas: Reliance (see box; in addition to petrochemicals, the company is also a leader in retail and digital services), Indian Oil (see box), Oil and Natural Gas Corporation, and Bharat Petroleum; manufacturing: Tata Motors (see box) and Rajesh Exports (see box); and financial services: State Bank of India (see box). All these companies are either government-owned or are family-owned conglomerates, a trend seen in other emerging markets as well. Reliance Industries and Tata Motors are the two largest conglomerates, run by the Ambani and Tata families, respectively. These companies are emblematic of India's progress in innovation and digitization. Indeed, these Indian Fortune 500 companies are increasingly adopting digitization strategies to either increase revenue or reduce costs (Figure 6.6). We discuss examples of innovation and digitization among these and start-up companies in the remainder of the section.

Reliance Limited (RIL) launched its telecom operator, Reliance Jio, to leverage the growing digital economy in India and is now the #1 ranked mobile telecom operator in the country based on both adjusted gross revenue and subscribers. While digital services is currently the smallest segment of Reliance, it is one of the fastest-growing with Jio commanding the highest market share of wireless (35%) and broadband subscribers (56%), according to the Telecom Regulatory Authority of India (TRAI, 2020). Tata Consultancy Services, a part of the Tata Group, is a multinational IT services and consulting company. They spun off their digital arm to offer services supporting digital transformations. SBI has taken several initiatives to support the growing fintech industry in India. SBI spun off its digital start-up YONO, valued at $40 billion, in 2020. Currently, YONO has 27 million users. Rajesh Exports plans to venture into e-commerce and launch gold bar vending machines at airport duty-free areas.

Figure 11.6. Indian Fortune 500 companies' digital strategy



Note: Degree of adoption is calculated using qualitative data, including the companies' current digital strategies and their future roadmap for digital adoption based on their annual reports, as well as quantitative measures, including revenues from their technology arms. Specifically, on the revenue side – TATA: TCS generates $22 billion of revenue; Reliance: Digital services received $9 billion of revenue; SBI: Actively pursuing digital strategy and has already launched 6 digital branches along with a website called 'pension seva' for people who have their pension account (No data on revenue); and Rajesh Export: Plans to venture into e-commerce market (have not launched it yet). On the cost side – Bharat Petroleum: Pursuing digital opportunities across the manufacturing and distribution supply chain including setting up shared services center, robotics, automation, and machine learning; ONGC: Digital is one of the key enablers for ONGC's 2040 roadmap including production optimization, digital procurement, smart drilling, and predictive exploration; and Indian oil: Plans to adopt digital transformation initiatives including enhanced customer connect through digital initiatives.
Source: Authors analysis based on the companies' annual reports.

Indian Oil

The Energy of India

Indian Oil Corporation Limited (IOCL) explores and refines crude oil and manufactures petroleum and petroleum products such as lubricating oils, liquid petroleum gas, aviation, turbine fuels, grease, wax bitumen, and asphalt. More recently, IOCL has ventured into alternative energy and the globalization of downstream operations. IOCL is a leader in the industry, accounting for 43% of the Indian market for retail outlets, 50% of the market for LPG distributers, and 47% of the market for Aviation Fuel Stations.

Currently, IOCL is the most profitable state-owned company in India. They control nearly half of India's petroleum products market share and are the second-largest domestic player in petrochemicals. IOCL owns and operates 11 of India's 23 refineries, with a combined refining capacity of 80.7 million metric tons annually. Major competitors include Bharat Petroleum, ONGC, Hindustan Petroleum, Reliance Industries, and Essar Group.

Recent Developments: IOCL is constantly expanding, currently building a new R&D center and setting up 10 new plants. In Feb 2020, IOCL entered a purchasing deal with Rosneft, a Russian oil company, and also launched BS-V1 fuels in all of their retail outlets. IOCL has also developed Integrated Para-Xylene (PX) and Purified Terephthalic Acid (PTA) and is working to develop waste-to-energy facilities and door-to-door delivery of diesel through mobile dispensers.

Internationalization: IOCL has expanded its operations into Sri Lanka, Mauritius, the UAE, Singapore, Sweden, USA, and The Netherlands through subsidiaries and exports to over 70 countries as well, offering the complete slate of petrochemical products and intermediates. IOCL plans to invest $13 billion over the next 5-7 years to expand its refining, marketing, petrochemicals, and natural gas business. IOCL also has strategic tie-ups with over 20 reputed national and international energy corporates and acquired participating interest in Exploration and Production assets in Oman, Abu Dhabi, and Israel.

Innovation: In FY 2018-19, IOCL spent $58.5 million on R&D expenditure and earned 107 patents bringing their total to 1000 active patents. IOCL is actively pursuing research into alternative energy and clean technologies in partnership with the Indian government, academia, and private industry. Indian Oil is aggressively leveraging its R&D expertise to move into horizon technologies like 2G & 3G ethanol, biofuels, coal gasification, H-CNG, Hydrogen fuel cells, battery technologies, and more. These technologies, along with cleaner fuels and higher engine efficiencies, can offer sustainable solutions to today's energy challenges. In 2017, IOCL R&D received the "Best innovation in Refineries" award from the Ministry of Petroleum & Natural Gas in India.

IndianOil

Fortune Global 500 2020: 151st

Revenue (2020):
US$ 69,246 million

Assets (2020):
US$ 43,609 million

Net Profit (2020):
(US$ 126 million)

HQ: New Delhi, India

Foundation year: 1959

Employees: 34,996

Ownership: Public; 53.08% government controlled

Industry: Petroleum Refining

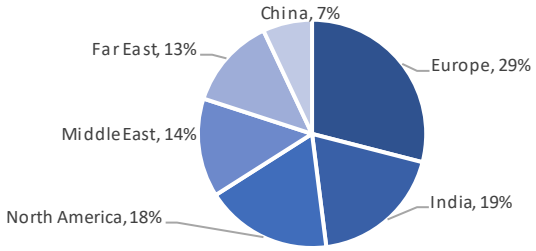
Source: Authors based on data and information from Capital IQ, 2020 Fortune Global 500, and Indian Oil Annual Report 2018-19, Digital Refining News; Accessed August 2020.

Rajesh Exports

Gold and Diamond Jewelry Manufacturer

Rajesh Exports Limited (REL) is an Indian retailer that refines, manufactures, wholesales, and retails gold and diamond jewelry and various gold products. The company refines over 35% of the world's gold. REL has a network of 83 retail jewelry showrooms under the SHUBH brand and supplies jewelry to more than 5,000 showrooms in India and the Middle East. REL has extensive export business worldwide. Impressively, the company achieves revenue of $27 billion with just 409 employees, comparatively lower than its peers. Major competitors include France's EssilorLuxottica and Kering, and Switzerland's Cie Financiere Richemont and Swatch Group. The company plans to venture into the e-commerce business and launch gold bar vending machines at Airport duty-free areas.

Revenue Distribution by Geography, 2020



81% of revenue comes from the international

Internationalization: In 2015, REL acquired Valcambi, the largest gold refiner in the world located in Switzerland for $400 million. This deal provides REL with access to some of the world's major mines with a capacity of 1,600 tons of gold and 2,000 tons of precious metals annually.

REL is the largest exporter of gold products in the world and exports to approximately 60 countries worldwide. These exports include gold bars to major bullion banks and jewelry to major white label manufacturers and wholesalers.

Innovation: REL regularly updates with new designs and new products, leading to a portfolio of over 1 million designs. REL's Research & Development is developing more efficient manufacturing processes and working to lower gold wastage in the world.

RAJESH EXPORTS

Fortune Global 500 2020: 462nd

Revenue (2020):
US$ 27,590 million

Assets (2020):
US$ 4,064 million

Net Profit (2020):
US$ 170 million

HQ: Bengaluru, India

Foundation year: 1995

Employees: 409

Ownership: Public; 72.28% held by Rajesh & Mehta family among others

Industry: Jewelry

Source: Authors based on data and information from Capital IQ, 2020 Fortune Global 500, and Rajesh Exports Annual Report 2018-19; Accessed August 2020.

The biggest national oil companies (NOCs) – Indian Oil (IOCL), Oil & Natural gas Corporation (ONGC), and Bharat Petroleum (BPCL) – have planned to implement digital transformations to reduce costs and increase efficiency. A digital strategy is one of the key enablers for ONGC's 2040 roadmap and is expected to impact areas including predictive exploration, smart drilling and wells, production optimization, digital procurement, and maintenance optimization. BPCL is pursuing digital opportunities across the manufacturing and distribution supply chain. This includes setting up a Shared Services Center (SSC), introducing technologies such as robotics, automation, cognitive analytics, and machine learning to increase operation efficiency and excellence.

Sustainable energy solutions are critical to meet India's energy needs as it is the third-largest energy consumer in the world while its oil production has been the lowest among major economies. IOCL, ONGC, BPCL, and Reliance have been investing in R&D to build alternative energy solutions. IOCL is actively pursuing research into alternative energy and clean technologies in partnership with the Indian government, academia, and private industry. Indian Oil plans to leverage its strong R&D expertise to build sustainable solutions. BPCL is working to improve energy efficiency and find carbon-neutral solutions. Through its efforts in innovation, BPCL has been the consistent recipient of awards including the FIPI Oil & Gas Award 2019 and the Golden Peacock Award. Reliance is taking strides to improve sustainability and energy conservation in the industry. Reliance's Petcoke gasification project, the largest in the world, has achieved steady-state operations as the scale and volumes are now sufficient to justify cost savings vis-à-vis investments (Reliance, 2016).

India combines these heavy natural resource companies and family-owned conglomerates with a thriving start-up ecosystem. Currently, six out of the top 50 global unicorn start-ups (companies valued at $1 billion and above) are from India (CB Insights, 2020). India has the third-largest share of unicorns, though far behind the US and China (USC Marshall, 2020). The two most highly valued unicorns in India are One97 Communications, which runs Paytm (see box), and BYJU's (see box below). Over the past decade, India's start-up ecosystem has grown tremendously with a CAGR of 10-12% fueled by the growing digital economy, the size of the domestic market, and the low cost of doing business (Startup India, 2020). Fintech, edtech, and healthtech are the growing verticals in India.

BYJU's operates in the edtech sector while Paytm's primary business is in fintech. According to CB Insights, in 2019, India outranked China to become the top fintech fundraising hub.

The key growth drivers for Paytm include the government's drive to promote digital payments in India and Paytm's strategy to include various kinds of payments in the platform while BYJU's growth has been driven by several factors including availability of the app in regional languages, personalized content, and animation and gamification of learning videos driving higher engagement.

BYJU's

The Learning App

BYJU'S is an Indian educational technology and online tutoring firm. BYJU'S offers highly personalized and effective learning programs for classes K-12 and for competitive exams like JEE, IAS, etc. Currently, BYJU'S has 50 million registered students and 3.5 million paid subscriptions. Major competitors are Khan Academy, Simplilearn, Vedantu, Topper, and Meritnation.

Development: BYJU's was developed by Think and Learn Private Ltd., a company established in 2011 by Byju Raveendran. In 2015, after four years of development, the company launched BYJU's The Learning App. BYJU'S has an 85% retention rate.

Funding: BYJU's has received funding and financial investments from Aarin Capital, Sequoia Capital India, Tencent, Sofina, Lightspeed Venture Partners, Verlinvest, IFC Napsters Ventures, CPPIB, General Atlantic, Bond, and the World Bank. BYJU's was also the first Asian company to receive an investment from the Chan-Zuckerberg Initiative. BYJU'S operates on a paid subscription service that generates revenue.

Services: BYJU's platform is based on personalized learning experiences for every type of learner. BYJU's also works to include technology into their lessons. Their programs include interactive and engaging modules, visually rich content such as digital animation videos, and personalized learning programs enabled through data science. Content runs on a freemium model where users can access content for a short time for free. BYJU'S has succeeded in attracting students from beyond urban areas with almost 70% of their users coming from outside of India's 10 largest cities.

Internationalization: BYJU'S also received $150 million to expand globally. Plans include entering the US, the UK, Australia, and New Zealand. BYJU'S has recently acquired a code training app, WhiteHat Jr, and a US-based startup, Osmo, which would help BYJU'S to expand globally.

COVID: COVID-19 has accelerated the need for home schooling due to safety concerns. Since the lockdown, BYJU'S has gained over 20 million new students on the platform. BYJU'S pivoted their model and shifted their focus from in-person classrooms to digital and online programs.

BYJU'S The Learning App

Valuation:
US$ 10 billion

Revenue (2020):
US$ 178.7 million (1341 crore)

Net Profit (2020):
US$ 2.6 million (19.35 crore)

HQ: Bangalore, India

Foundation year: 2015

Employees: 9000

Ownership: Private

Industry: Education Services

Source: Authors based on data and information from Capital IQ, 2020 Fortune Global 500, and BYJU's Annual Report 2018-19; Accessed August 2020.

11.6. A Bright Future with Caveats

Over the past decade, India's economy has grown strongly relative to its peers, primarily led by a boom in the services sector. The country has experienced high FDI inflows backed by business-friendly policies and the availability of cheap land and skilled labor. An added advantage now for India is that public and private sectors have made major investments in digitization along with rapid privatized infrastructure development, including freight transport and electricity supply. The time is now right for India to capitalize on these investments and base its next growth phase on digitization and automation. In the near term, we foresee India continuing to boost its high-tech manufacturing and homegrown technologies, a place where India has been behind its peers, including China.

While services (mainly IT), pharmaceuticals and manufacturing sectors remain the engines of growth, there is an untapped potential in India's vast agriculture ecosystem as well. Agriculture still plays an important role in India's economy and society while, at the same time, it is a major factor behind India's low per capita GDP. To enhance the productivity of the sector, the Indian government is pushing towards digital and technological reforms. To unlock its potential, India will have to shift away from exports of minerals and gems to exports of value-enhanced products. Technological innovations such as cold storage, food processing, and increased land productivity are all measures that are on the government's radar to bolster the agri-ecosystem.

Technology is a key advantage that India has over other emerging economies and is doing well to rapidly integrate digitization in all aspects of its economy. While the rise of IT drove India's growth over the past decade, we expect that digitization will drive its growth in the coming decade. We see this rise of digitization percolating to the secondary and primary sectors, boosting India's

productivity and increasing its attraction as an investment destination. Going forward, these technologies have the potential to position India as a key exporter and outbound FDI source, to become a key player in the world economy.

To seal its position among the dominant global economies, India will need to deal with many obstacles, some new and some old. It shares many of the environmental and social challenges of other emerging markets. India is among the forefront of countries feeling the effects of climate change with high levels of pollution (6 Indian cities among the top 10 most polluted in the world) and many areas experiencing shortages of drinking water. Poverty is on the decline in the country with the World Bank estimating that the incidence of multidimensional poverty declined from 55% at the time of independence in 1947 to 6% currently. India is ranked 80 among 180 countries according to Transparency International's Corruption Perceptions Index, improving from 95 in 2011. More needs to be done with regards to the environment and social inclusion if the country is to realize its potential. The government and the business sector have to work together to be part of the solution in order to move India to the next level of development.

References

Aryan, A. (2020, July 29). Global electronic giants seek to ramp up India play | Business News,The Indian Express. Accessed September 26, 2020, from https://indianexpress.com/article/business/global-electronic-giants-seek-to-ramp-up-india-play-6528196/

Cable (2020, February 25). Worldwide Mobile Data Pricing League | Cost of 1GB in 230 countries - Cable.co.uk. Accessed September 26, 2020, from https://www.cable.co.uk/mobiles/worldwide-data-pricing/

CB Insights (2020). The Complete List of Unicorn Companies. Accessed September 25, 2020, from https://www.cbinsights.com/research-unicorn-companies

CNN (2020, April 24). Facebook Jio deal: Company invests $5.7 billion for 9.99% stake in India's Jio Platforms - CNN. Accessed September 26, 2020, from https://www.cnn.com/2020/04/22/tech/facebook-india-reliance-jio/index.html

DoC (2020). Department of Commerce, Ministry of Commerce and Industry, Government of India website. Accessed December 19, 2020, from https://commerce.gov.in/about-us/divisions/export-products-division/export-products-agriculture/

Dossani, R., and Kenney, M. (2007). The next wave of globalization: relocating service provision to india. World development, 35(5), 772–791. doi:10.1016/j.worlddev.2006.09.014

DPIIT (2020). Department for Promotion of Industry and Internal Trade, Government of India website. Accessed December 19, 2020, from https://dipp.gov.in/publications/fdi-statistics

Fast Company (2018). The World's 50 Most Innovative Companies. Accessed September 25, 2020, from https://www.fastcompany.com/most-innovative-companies/2018

Ganguly, A., & Das, K. (2017). Multi-sectoral Analysis of Foreign Investment and Trade Liberalization in India: A CGE Modelling Approach. Global Business Review, 18(5), 1345–1372. doi:10.1177/0972150917710102

Gupta, P., and Bloom, F. (2018, April 12). India's remarkably robust and resilient growth story. Accessed September 25, 2020, from https://blogs.worldbank.org/endpovertyinsouthasia/india-s-remarkably-robust-and-resilient-growth-story

IBEF (2020a, August). Telecom Industry in India. Accessed September 26, 2020, from https://www.ibef.org/industry/telecommunications.aspx

IBEF (2020b, August 24). FDI in India: Foreign Direct Investment Opportunities, Policy | IBEF. Accessed September 26, 2020, from https://www.ibef.org/economy/foreign-direct-investment.aspx

Joumard, I., Arriola, C., and Dek, M. (2020). Challenges and opportunities of India's enhanced participation in the global economy. doi:10.1787/a6facd16-en

Kapoor, A., and Ahmed, I. (2020, September 2). India's exports: New opportunities and newer challenges - The Economic Times. Accessed September 25, 2020, from https://economictimes.indiatimes.com/news/economy/foreign-trade/indias-exports-new-opportunities-and-newer-challenges/articleshow/77883219.cms

McKinsey (March 2019). Digital India: Technology to transform a connected nation | McKinsey. Accessed September 26, 2020, from https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/digital-india-technology-to-transform-a-connected-nation

Money Control (2020). Money Control. Accessed December 29, 2020, from https://www.moneycontrol.com/stocks/marketinfo/marketcap/bse/agriculture.html

OEC, O. of E. C. (2020). India (IND) Exports, Imports, and Trade Partners. Accessed September 25, 2020, from https://oec.world/en/profile/country/ind

OECD (2019). OECD Economic Surveys: India 2019. OECD. doi:10.1787/554c1c22-en

OECD (2020). Demography - Working age population. Accessed September 25, 2020, from https://data.oecd.org/pop/working-age-population.htm

Press Trust of India (2019, March 7). Kantar IMRB Releases the Twenty-First Edition of ICUBETM Report. Accessed September 26, 2020, from https://www.outlookindia.com/newsscroll/kantar-imrb-releases-the-twentyfirst-edition-of-icube-report/1491589

Press Trust of India (2020, July 19). Seven Indian pharmaceutical companies race to develop vaccine for deadly coronavirus. Accessed September 26, 2020, from https://economictimes.indiatimes.com/industry/healthcare/biotech/pharmaceuticals/seven-indian-pharmaceutical-companies-race-to-develop-vaccine-for-deadly-coronavirus/articleshow/77049460.cms?from=mdr

Reliance (2016). Reliance Industries Limited Investor Presentation at Morgan Stanley Eighteenth Annual India Summit, May 2016. Accessed December 30, 2020, from https://www.ril.com/getattachment/7c210e67-5b0e-4965-b1a2-2ee83e19cee9/Morgan-Stanley-Eighteenth-Annual-India-Summit,-31.aspx

Singh, A. K., Upadhyaya, A., Kumari, S., Sundaram, P. K., and Jeet, P. (2020). Role of Agriculture in making India $5 trillion Economy under Corona Pandemic Circumstance. Journal of Agricultural Studies, 6(02). doi:10.21921/jas.v6i02.18097

Statista (2020a). Digital Payments - worldwide. Accessed September 24, 2020, from https://www.statista.com/outlook/296/100/digital-payments/worldwide#market-arpu

Statista (2020b, July 13). India - COVID-19 impact on therapy drug sales by type 2020. Accessed September 26, 2020, from https://www.statista.com/statistics/1112420/india-pharmaceutical-therapy-drugs-sales-growth-coronavirus/

Startup India (2020). Startup India Scheme, Government of India - Startup Ecosystem in India: Quick Facts. Accessed December 20, 2020, from https://www.startupindia.gov.in/content/sih/en/startup-scheme/International/indian-startup-ecosystem.html

Times of India (2020, May 5). From zero, India now produces around 2 lakh PPE kits per day. Accessed September 25, 2020, from https://timesofindia.indiatimes.com/india/from-zero-india-now-produces-around-2-lakh-ppe-kits-per-day/articleshow/75556879.cms

Times of India (2020, June 19). China supplies over 80% of pharma raw materials. Accessed September 25, 2020, from https://timesofindia.indiatimes.com/business/india-business/china-supplies-over-80-of-pharma-raw-materials/articleshow/76453541.cms

TPL (2020, June 1). Pharma growth tapers in India as COVID-19 impact plays out. Accessed September 26, 2020, from https://www.thepharmaletter.com/article/pharma-growth-tapers-in-india-as-covid-19-impact-plays-out

TRAI (2020). Telecom Regulatory Authority of India - Highlights of Telecom Subscription Data as on 30th September 2020. Accessed December 20, 2020, from https://www.trai.gov.in/sites/default/files/PR_No.95of2020.pdf

USC Marshall (2020). Startup Index of Nations & Regions. Accessed December 30, 2020, from https://www.marshall.usc.edu/faculty-research/centers-excellence/center-global-innovation/startup-index-nations-regions

WITS (2018). ICT service exports By Country in BoP, current US$ 1988 - 2018. Accessed September 26, 2020, from https://wits.worldbank.org/CountryProfile/en/country/by-country/startyear/LTST/endyear/LTST/indicator/BX-GSR-CCIS-CD

World Bank (2017). What's holding back India's automotive sector? Accessed December 29, 2020. https://blogs.worldbank.org/psd/what-s-holding-back-india-s-automotive-sector

World Bank (2019, October 24). Doing Business 2020: Reforms Boost India's Business Climate Rankings; Among Top Ten Improvers for Third Straight Year. Accessed September 25, 2020, from https://www.worldbank.org/en/news/press-release/2019/10/24/doing-business-india-top-10-improver-business-climate-ranking

World Bank (2020a). Mobile cellular subscriptions (per 100 people) - India | Data. Accessed September 26, 2020, from https://data.worldbank.org/indicator/IT.CEL.SETS.P2?locations=IN

World Bank (2020b, May 17). India: Issues and Priorities for Agriculture. Accessed September 25, 2020, from https://www.worldbank.org/en/news/feature/2012/05/17/india-agriculture-issues-priorities

World Trade Organization (2019). World trade statistical review 2019. WTO. doi:10.30875/7195c6e1-en

OPINION PIECES

FROM EMI FACULTY ADVISORY COUNCIL MEMBERS

PALOMA FERNÁNDEZ-PÉREZ - Professor, Universitat de Barcelona (Barcelona, Spain).

Hospitals and Emerging Markets from a Historian´s Point of View

Emerging economies have increased their health care expenditure over the last two decades, and some of them have even surpassed the number of hospital beds per 10,000 population of the United States and several Western European countries. There are, though, vast differences inside the group of emerging countries in this regard, particularly between the Russian Federation or China with the best records of progress in this issue, and the very low advance of India. Unequal access to health care services and insurance coverage are some of the challenges to overcome in the next decades. Private investment in updated health care centers, equipment and medical staff is only accessible to a minority of citizens in large urban centers. The State and the forces of imaginative reverse innovation are trying at this moment to overcome some of the major problems.

The World Economic Forum has indicated that emerging economies may drive one-third of global health expenditure by 2022. The high population densities, and above all the high urbanization levels, concentrate health care consumption and health care suppliers. Russia and China already have many more beds per 1,000 population than the USA. South Africa and Brazil are close to the North American figures: Russia 9.66, Germany 8.17, China 4.06, USA 3.10, South Africa 2.84, Brazil 2.40 and very far from them, India, with 0.90 beds per 1,000 people. [56]

The table below provides the most updated data from the World Health Organization on beds per 10,000 population for a selection of emerging economies and some leading developed countries. Beds per inhabitant is a significant analytical variable that despite lacking in detail about health expenditure, allows easy international comparisons. The table below shows how the emerging economies have achieved significant levels of hospital beds per population in the last two decades, though these countries are still far from the leading powers that spend more in health and hospital beds like Germany or Japan, and with the outstanding exception of India (with a very low level of health infrastructure).

Hospital Bed Density (Hospital beds per 10,000 population)

Emerging Economies	**2017**	**2000**
China	43.1	16.8
India	5.3	6.5
Russian Federation	71.2*(2018)	114.0
South Africa	23.0* (2010)	31.0* (2002)
Brazil	20.9	28.2
Mexico	9.9	10.5
(Cuba)	53.3	50.8* (2011)
Developed Economies	**2017**	**2000**
Germany	80.0	91.2
Japan	129.9* (2018)	146.9
South Korea	124.3* (2018)	46.5
USA	28.7	34.9

Source: World Health Organization. Updated 1 July 2020. Retrieved from https://apps.who.int/gho/data/view.main.HS07v (access 9 October 2020).

Improvements in hospital beds are a sign of increases in health expenditure. Data regarding health care expenditure as a % of Gross Domestic Product over the last two decades, by big regions of the world shown in the table below, reveals two major long-term trends: on the one hand, the common increase (slow) in all regions; and on the other hand, the regions that register the slowest increases are Western Pacific, Africa, and South East Asia

[56] Siemens Healthineers (2015), Healthcare in Emerging Markets: Challenges & Opportunities. The Disproportionately Growing and Aging Population in Emerging Economies Calls for New Healthcare Delivery Models https://www.siemens-healthineers.com/magazine/mso-healthcare-in-emerging-markets.html Jan 21, 2015

Current Health Expenditure as % Of Gross Domestic Product

WHO region	2017	2012	2007	2002	2000
Global	6.3	5.9	5.7	5.6	5.4
Africa	5.7	5.4	5.7	5.1	5.0
Americas	7.0	6.9	6.4	6.3	6.0
South-East Asia	4.3	3.7	3.5	4.0	3.6
Europe	7.8	7.8	7.0	6.9	6.5
Eastern Medit.	5.7	4.7	4.6	4.9	4.4
Western Pacific	7.1	6.6	7.2	6.7	6.6

Source: World Health Organization (last updated 23 January 2020) by WHO Region. Retrieved from https://apps.who.int/gho/data/view.main.GHEDCHEGDPSHA2011REGv?lang=en (access 09 October 2020)

The health care system is very diverse in the world, and it is also diverse if we compare emerging markets: Brazil guarantees free public healthcare with the Sistema Único de Saúde, and the State leads major partnerships with big pharmaceutical corporations like Bristol-Myers Squibb and GlaxoSmithKline to supply major drugs to fight against major epidemics t a massive scale and at a set price. In open contrast, India´s population of 1 billion have difficulties to access basic healthcare, an issue experienced in many South American and Central American countries, where vast inequalities exist between the middle class or the wealthy and the rest of the population in terms of the average access to health care services and insurances. However, technology is slowly but steadily being used in India to overcome major economic inequalities: top hospitals are connected with rural clinics and supply telemedicine advice and instructions. During the last century, China has faced problems that are similar to the challenges India is facing, with increasing inequality in the access to the best health care services in major urban centers, and the short supply and density of medical staff.[57]

Brazil, India, China, Russia, South Africa, and most Latin American nations share, despite their slow relative increase in health care expenditure over GDP in the last century, three common problems: health care infrastructures outside major metropolis and cities, broad access to preventive and healing health care, and mass access to health care insurance coverage. Similar to the Ancien Regime years or colonial times, major cities have modern luxurious health care centers with the latest technological and scientific innovations, and the best doctors and medical personnel, but their prices are not generally affordable to most citizens, and there are no comparable services in vast rural areas or poorer provinces.[58]

Figures about total expenditure on health as a percentage of Gross Domestic Product reveals that at a broad national level, the emerging economies and their billions of citizens still have a horizon of improvement and growth in their investment in health care. Private investment and private consumption in health care are higher than the public ones. Unequal wealth distribution and the dominant poverty of most of the population despite the relative increases in wealth and the middle classes until the impact of COVID-19 create chronic problems difficult to solve without major investments from the public side. The recent collapse of the economy with COVID-19 is possibly seriously reducing the possibilities of public investments in most emerging economies when they are most needed in the health care sector.

India, where the lowest figures of hospital beds per 10,000 population were found, is the country with the highest percentage of private healthcare spending among the top emerging economies, with almost 70% share of total healthcare spending coming from the private sector. This percentage is around 52% in the USA, 23% in Germany, and 17 % in Japan, but 47% in China, 56% in Brazil, 36% in Russia, 56% in South Africa, 62% in Vietnam, 67% in Bangladesh. Despite the relevance of private health spending, private health insurance is affordable only to a minority of the population, a socioeconomic group that obviously spends a lot: except in China where healthcare insurance coverage is close to 90% of its population. In Brazil and India, private health insurance covers only an average of 25% of the population. The restrictions to access health care services increase in India, Brazil or China, because of the very low level of physicians per 1000 population, according to data of the WHO of 2010 and 2012: 2.4 in Brazil, 1.4 in China, 0.6 in India.[59]

The limited number of large hospitals, and physicians or beds per hospital and per 10,000 people is difficult to change with the current forecasts derived from the collapse of the economy due to COVID-19. History teaches us that in times of fewer resources,

[57] Siemens Healthineers (2015).
[58] Operations Research (2020). Health care in Emerging Countries. https://www.informs.org/ORMS-Today/Public-Articles/April-Volume-40-Number-2/International-O.R.-Healthcare-in-emerging-countries
[59] World Health Organization (2010 and 2012). World Health Statistics.

efficient measures to maximize the use of such resources is essential, for the economy in general but especially in pandemic times for the welfare of vast numbers of people. Efficiency is closely linked to collective entrepreneurship, and the efficient organization and management of human capital and health care intangible and tangible assets (Fernández Perez 2021). There are not many broad studies that have analyzed and compared at a global scale the typologies and models of organization and management of health care institutions, so crucial to understand efficient and non-efficient ways of handling the health care crisis that severely hit the global economy, like today. Present actions to increase efficiency will be analyzed in a few years. Now we can benefit from past lessons offered by history that shed light on how difficult, but how possible too, the increase in efficiency is relevant to overcome a global pandemic in emerging economies. An effort in this direction is a new book by Emerald Publishers, *The Emergence of Modern Hospital Organization and Management in the World, 1900s-1930s.* https://books.emeraldinsight.com/page/detail/The-Emergence-of-Modern-Hospital-Management-and-Organization-in-the-World-1880s1930s/?k=9781787699908 .

This book first of all analyzes a period of a previous pandemic, the Spanish flu of 1918-1920. Second, the analysis of how the health care sector changed in those years is elaborated with the international comparison of a variety of economies that were at that time emerging economies: the USA, Western Europe, Japan. Also, the book analyzes the dissemination of innovations in the economy and health care from these economies to China, Hong Kong, and other territories in Western Europe, and the Pacific rim. Third, the book analyzes a multilateral model of interaction of factors that in some territories produced efficient models of hospital management that still endure as in Germany or Switzerland, and in others produced local struggles that in some hospitals led to success and in others to plain waste of resources and opportunities to improve health care prevention and healing to masses of people migrating to large cities in the world. The book, therefore, takes a moment in history as a laboratory to see the agents and factors that can determine efficiency in the management of scarce resources in times of a pandemic, or in a loss of opportunities in large hospitals of large cities. The premise of the book is that, when there is a global pandemic, large health care infrastructures must change, and leadership and coordination with institutions and scientific leaders achieved, in order to maximize the insufficient resources at hand to face the big challenge that a new pandemic represents in each country.

One of the most interesting findings of the book is that the previous existence of cooperation between scientific, economic, and political agents and institutions involved in the health care system determined the speed to implement efficient responses to a world pandemic. The lack of such cooperation often determined failure. Efficient ways of handling health care centers only really took place in hospitals, cities, regions, or countries, in which politics, science, and entrepreneurs had built structural channels of communication and cooperation that reduced internal opposition and conflict and promoted dialogue and the introduction of useful innovations. A century ago, according to the book, these structural efficient patterns were solidly consolidated in Germany, and important efforts were shown in France, the United Kingdom, Switzerland, Japan, and Communist Russia. In the rest of the world, local feuds and conflicts within the medical profession, between the medical profession and private philanthropy, and between administrations sharing the sponsorship of health care centers, was the framework in which radical innovations like X-Rays or vaccines, and after the 1940s penicillin, struggled to find a place in large hospitals suffering from irregular and insufficient funding, lack of professionally trained nurses and healthcare auxiliaries.

The book offers a new elaboration of fragmented and dispersed figures about hospital beds per 1,000 inhabitants for various years between 1929 and 2017, extremely difficult to find due to lack of health care statistics (reliable or not) for the years before 1960 when international organizations started the scientific compilation of such figures and others affecting the infrastructures and staff in the health care sector in all countries of the world (Fernández Pérez 2021).

Hospitals and Hospital beds in various cities and countries 1930-2018

Country	1929/1930	1960	1970	1990	2017
USA	2.97	9.1	7.88	4.86	2.77
Germany	5.0	10.5	11.3	10.3	8.3
UK		9.6	9.6	5.9	2.8 (2013)
Japan		9	12.5	15 (1993)	13.4 (2012)
Italy		8.8	10.6	7.9	3.1
France	3.6				
Spain	4.0 (1940)		4.6	4.2	2.9
Argentina		6.3	5.5	4.5	
Cuba		4.3	4.6	5.4	5.2
Mexico	9.6		1.2	2.0	
Panama	3.8				
URSS	29 (1931)				

Source: For 1929/1930 League of Nations 1930, Newsholme and Kingsbury 1933:244-246 for Russia), and Nicolau 2005 (for Spain 1940). 1970, 1990 and 2017: OECD, WHO and World Bank (https://datos.bancomundial.org/indicador/SH.MED.BEDS.ZS?view=chart) Statistics.

There have been two periods in the last century of significant increase in the investments in science, welfare in general, and health care infrastructures and staff in the world, including in the emerging economies: the first third of the 20th century, and the 1960s. Between the 1930s-1950s, and after the 1970s with particular intensity after the 1990s in most of the world there have been two large periods of a steady and sustained reduction in the public investments in science and welfare in most countries of the world (the exception Japan, Germany, and several countries with former or current communist regimes).

A better health care after COVID-19?

During the COVID-19 pandemic, healthcare has been very closely identified as a crucial component not just of our welfare systems, but also of our possibilities to maintain or increase our economic growth. Healthcare resources, and the efficient management of those resources, are visibly crucial to reduce or increase the growth rates of deaths, unemployment, and decline of our GDPs.

The different pathways taken in the world to react to the first and now second waves of COVID-19 reveal the diversity of path dependent cultural and institutional traditions with respect to science, scientific communities, and public health care issues. Respect in our capitalist system means good labour conditions and salaries, of course, but also means institutional forms of having the voice of science heard in a stable way in political decision centers. Territories in which there is an old tradition of respect and support to science and healthcare have been in general stronger to react and coordinate health care resources, as it seems to have been the case in Germany or Japan, but also in China or Taiwan. Territories with traditional disregard for science and healthcare have been weaker because the necessary trust and strength of networks of scientists and public health care politicians needed reinforcement. Trust and respect in science and health care actors also means to reverse the trend that started in the 1990s in the world of reduction in the number of hospitals and hospital beds, and the reduction in the money allocated to hire long-term careers in science and medicine. A lesson of these months is that long-term investments in science and healthcare must come back to the situation that the world witnessed after the 1960s. We need more budget allocated to research and welfare, if we want to avoid the collapse of our health and our economy this time, or the next pandemic across the corner.

PETER GAMMELTOFT - Professor, Copenhagen Business School, Denmark

Emerging Markets and Global Governance Reforms

After a long period of rapid economic growth, emerging markets have acquired a significant presence in the global economy. The presence is even more significant when extra-economic factors such as population, land mass, natural resources and biodiversity are taken into account. Economic growth in emerging markets as a group has receded in recent years, and the period of rapid economic growth has been succeeded by a much slower and more cumbersome and conflict-prone one of their accommodation into global institutions.

'Emerging markets' (EMs) as a concept has always been laden with contradictions. The diversity both within and across these countries is enormous. The BRICS group (Brazil, Russia, India, China, and South Africa), often promoted as the protagonists of emerging markets, is a noteworthy example: the governance systems of these countries are highly different, with three democracies and two better characterized as authoritarian and totalitarian, respectively. Their economic specializations are highly variant, with three countries more dependent on energy and mineral exports and two more on labor-intensive exports. Their security and geopolitical interests are widely dissimilar, partly derived from their different geographical locations. The ongoing geopolitical skirmish between India and China in Ladakh, for example, is a graphic caution against illusions of intra-group homogeneity. The huge diversities and resulting diverging interests have often made it difficult for the BRICS countries to act collectively in international affairs, be it trade negotiations, human rights issues or governance reforms of international institutions.

More than anything, the lure of emerging markets, and the BRICS countries in particular, has been their dynamism and high economic growth rates along with projections of their future dominance in the global economy. Based on the performance of these countries when the concepts of 'emerging markets' and 'BRIC(S)' were first introduced, these projections were not unreasonable. Nevertheless, they have not quite come to fruition and in recent years in particular, the economic performance of emerging markets as a group has faltered. Of course, again, performance is widely disparate within the group of emerging markets, with emerging Asia outperforming other regions, Latin America performing not so well, and differential performance across Africa. Yet, taken together, emerging markets have so far not performed according to projections.

Both the concepts of 'emerging markets' and 'BRIC' were first introduced as vehicles of financial investments against the backdrop of their economic dynamism and growing share of world GDP. The concept of 'emerging markets' was introduced in 1981 by Antoine van Agtmael at the World Bank, who hoped that labeling a set of promising stock markets would help attract the investment they needed to develop. Further momentum was added when Jim O'Neill advanced the 'BRIC' concept with the 2001 Goldman Sachs report on the topic. However, in terms of economic performance, emerging markets never quite recovered from the 2008 financial crisis but have struggled with falling commodity prices, receding growth in China, disrupted global supply chains and slowdown of productivity. Since 2014, developed markets have grown more quickly than emerging ones. Over the last decade, emerging market stocks have not performed well, and in late 2015, Goldman Sachs merged its BRIC investment fund into a general emerging market one after its assets had declined to USD100 mio from a 2010 peak of USD800 mio.

But even if economic growth has receded and emerging markets currently fare as a less attractive financial investment class, they still account for the major part of global resources and population. In PPP terms, the countries in the MSCI Emerging Markets index made up half of world GDP in 2018, up from 33 percent in 1991 (from 17 to 37 percent in nominal terms). It might also be argued that the discourse on emerging markets has tended to be overly preoccupied with economic performance in the first place, at the expense of other dimensions.

One such important alternative dimension is EM representation in institutions of global governance. Regardless whether the lacuna in economic performance is transitory or structural and more permanent, emerging markets are undeniably underrepresented in global institutions, particularly when extra-economic dimensions are taken into account. Further, in an increasingly multipolar world, the relevance of international deliberation is taking on growing importance. In principle, this shortcoming can be remedied in three different ways: increase EM representation in international institutions in their current form, reform the governance structure of existing institutions, or introduce new and alternative institutions of global governance.

Where increasing representation is concerned it is likely that EM representation in existing institutions will gradually expand commensurate with the size and sophistication of their economies, particularly for international NGOs not requiring formal governance reforms, such as ISO or WEF. However, it is also likely that without authoritative action, emerging markets will remain underrepresented relative to the impact the actions of international institutions will have on their societies.

Where governance reforms of existing institutions are concerned, let us consider the IMF, the World Bank, and the WTO. With respect to the IMF, some progress has been achieved: in 2016, a quota and governance reform was ratified by IMF member states and came into effect. The reform was actually approved by the IMF itself already in 2010 but subsequently held up in US Congress for five years. The reform included a shift in quota shares, and hence voting rights, toward emerging market and developing countries, elevating for the first time four emerging markets (Brazil, China, India, and Russia) to the 10 largest members of the IMF. Furthermore, the IMF executive board came to consist entirely of elected members, replacing a system where five members were appointed by states with the largest quotas. Still, the reforms are widely assessed to insufficiently accommodate emerging markets.

With respect to the World Bank, a set of reforms were agreed upon in 2010 to enhance the voice and participation of emerging and developing countries by realigning shareholding and voting power in line with economic weight and development contributions. Yet, the shift of voting power amounted to less than five percentage points and was not reflective of current relative economic weight and this too was widely regarded as inadequate.

In the WTO where negotiations were traditionally dominated by the United States, the European Union, Japan and Canada, emerging economies managed to gain significantly more influence under the Doha Round where Brazil, India and China de facto displaced Japan and Canada as main agenda setters and negotiators. However, this realignment of influence may have contributed to the stalling of the Doha Round and perhaps even marginally to some countries' increasing resort to unilateralism and protectionism. Emerging markets have come to use the WTO dispute settlement system effectively to challenge developed-country trade practices, even though far more cases are still brought by developed countries against emerging and developing countries than vice versa. Displeased with the court's rulings, the United States refused in December 2019 to appoint new judges, effectively incapacitating the WTO dispute settlement court as the number of judges dropped below the required three.

The limited progress of reforms for existing institutions of global governance has added at least some momentum to the creation of new institutions. For example, the BRICS countries have institutionalized annual summits since 2009 (South Africa joining in 2010). In addition to coping with the 2008 financial crisis, from the outset one of the main purposes of the initiative was the reform of financial and economic global governance institutions. Importantly, in 2014 the BRICS launched two new institutions intended to complement the IMF and the World Bank: the 'Contingency Reserve Arrangement' with $100 billion capitalization that can be drawn from by BRICS members in need of funds; and the 'New Development Bank' with authorized capital of $100 billion, open to all members of the United Nations.

The G20 has emerged as another international institution and has become a credible and relatively effective forum for international economic coordination and cooperation, eclipsing the G7/8. It brings together advanced and emerging-market countries and represents two-thirds of the world's population and 90 percent of world GDP. The forum was first established in 1999 in response to the debt crises in Latin America and Asia in the 1990s but was considerably strengthened in 2008 when summits were elevated to convene heads of state and the focus was oriented towards responding collectively to the global financial crisis. Addressing the underrepresentation of emerging markets in global governance was also an explicit main focus of the initiative.

Another institutional innovation has been the China-initiated and led Asian Infrastructure Investment Bank, created in 2015 with an initial capitalization of USD 100 billion, which currently includes 103 member states, among which the United States and Japan are not included. The AIIB primarily rivals Japanese-led Asian Development Bank and its formation has inter alia served to further balance China's influence in global governance with its current economic weight. While not the most important driver, emerging markets' underrepresentation in existing institutions is likely to have contributed in some measure to the formation of the Chinese Asian Investment Infrastructure Bank (AIIB) and to breaking the US Congress block of the IMF governance reform, in turn.

In a time characterized by measures of voluntary as well as involuntary withdrawal from international engagement, representation in international institutions may arguably be less significant than it used to be. However, as most other things,

international affairs are subject to cycles, and the nature and scale of global challenges will necessitate, later if not sooner, the reinvigoration of institutions of global governance. In the absence of progress in reforming existing institutions of global governance, the creation and participation in new and alternative institutions may prove a more viable option for emerging and developing economies to rebalance their influence and participation in global affairs, concurrently leveraging stronger bargaining positions in existing ones.

XIAOJUN HUANG - Executive Vice President and Senior Financial Economist, Bank of China (New York, U.S.)
RUIHAO XIE - Business Research Analyst, Bank of China (New York, U.S.)

Post-pandemic Trends and Opportunities for Global Industrial Chain

The global outbreak of COVID-19 has had a significant impact on economic performance and activity around the world. It is now broadly projected that it may take a year or more for the economy to fully recover. More importantly, beyond the direct economic impact, underlying adjustments will be seen in industrial structure, especially in the global industrial chain, which will, in turn, have a more profound and long-term impact on the global economy.

I. Pre-pandemic trends in global industrial chains and contributing factors

Prior to the COVID-19 pandemic, the development of global industrial chains had observed two phases: the expansion phase from 1990 to 2008 before the financial crisis, and the stable to weakening phase from 2009 to early 2020 before the pandemic.

Since the early 1990s, with emerging markets following the trend of globalization on all fronts, foreign direct investment (FDI) from developed countries has increased significantly. More and more enterprises have started to use global supply chains to organize their manufacturing, and the scale of global industrial chains has been magnified. The intermediate trade good has become the most important part of global trade; the proportion of global value chains has contributed 60 percent [60] to the growth of global trade. Three main factors have contributed to this phenomenon:

The first factor is the pursuit of low cost and economic efficiency by global firms. The comparative cost advantage of a company becomes the most crucial catalyst in this expansion phase. Multinational enterprises, as the executors of the global comparative advantages, become the key drivers for carrying out the global industrial chain layout.

The second factor is the uninterrupted development of science and technology, especially of information technology, which makes it possible for enterprises to closely coordinate information and logistics in different countries and time zones, providing the necessary conditions for the materialization of global value chains. The creation and popularity of the *Just-In-Time* manufacturing system is a classic example.

The third factor is that the trade barriers were at a relatively low level globally. Though there have occasionally been public health scares, these epidemics never developed into something as serious as the COVID-19 in 2020. Before the pandemic, trade protectionism had not yet prevailed in most countries, and the manufacturing, logistics of raw materials, intermediate products and finished products were running very smoothly. Therefore, enterprises did not need to worry too much about the geographic risks and could concentrate on the efficiency as their surviving principle, providing the necessary condition for the development of global value chains.

After the financial crisis in 2008, the expansion phase of global value chains ultimately halted and entered a mature or even declining phase. Most of this adjustment process was still cost/efficiency driven, but due to the following factors, the global value chain could not continue to expand in size.

First, at the industrial level, the characteristics of a specific industry determine whether it is fitting in the layout of global supply chains. After decades of development, industries that are relatively suitable for manufacturing decentralization under the premise of comparative cost advantages have, by and large, accomplished this transformation. The overall size of the global value chain eventually hit the limit to expand.

McKinsey's latest report shows that the degree of change in the Hirschman-Herfindahl Index or HHI Index of export distribution has shown great variation across industries globally over the last 20 years. In general, the HHI indexes of electronics, clothing, furniture and other industries have risen by more than 50%, and the electronics industry more than 200%, supporting the

[60] [60] Kilic, Kemal, and Dalia Marin. "How COVID-19 is transforming the world economy." VoxEU. org 10 (2020).

fact that these industries continue to promote the degree of division of labor in various segments. Industries such as aviation and pharmaceuticals have seen the largest drop in HHI values to 40%[61], showing that these industries themselves are not suited to the global supply chain framework.

Secondly, it is also the rise of trade protectionism in a few developed countries after the financial crisis, gradually raising trade barriers or subsidized polices for reshoring the oversea company, that make the expansion stage of value chains begin to weaken.

Early examples include the European Union's anti-dumping measures against several Chinese commodities in 2011 after the financial crisis, involving industrial parts, decoration materials, paper materials, and more. Since 2016, the US has pursued a series of trade and industrial policies with "America First" as their core mission. Specific policies include, but are not limited to, the US tariff hiking to China, Europe, Canada, Mexico, and other countries, as well as the government's large-scale subsidies to their own companies operating overseas for returning home. The continued introduction of such measures by countries around the world has changed the situation of low global trade barriers since the 1990s, making it increasingly difficult for companies to decentralize production across countries, thus significantly holding back the development of global value chains.

Thirdly, with the development of automated production technology, the labor cost advantage of developing countries is no longer manifest. Technological progress in automated production has helped enterprises to save costs throughout the global supply chains.

Research shows that companies in developed countries have been investing in factory robots since the mid-1990s. In Germany, the number of robots per 1,000 workers increased from one in 1995 to four in 2014. In South Korea, this number is currently 6. In Japan it is also over 4, while in the United States it is at 1.5. However, it should be noted that in different industries, the degree of robotic substitution for cheap labor is not the same. For instance, Data[62] show that 50%-60% of the stock of robots in various industries are used in the automotive industry, while in labor-intensive industries, such as the garment industry, not many robots are put into use.

II. Impact of COVID-19 on the global industrial chain system

The abrupt impact of the pandemic on the global economy has weakened global industrial chains, especially supply chains and value chains, and effects have been felt at both the corporate and national levels.

At the enterprise level, COVID-19 has caused huge loss to enterprises in the global industrial value chain, forcing them to pay particular attention to supply chain risks and rethink their supply chain layout. As a result of the new outbreak, businesses that rely on global *Just-In-Time* operations are facing a "manufacturing desert", supply chain failures and a disconnection between production and sales.

According to McKinsey's report[63], the total value of global merchandise trade affected by COVID-19 has been $2.9 trillion to $4.6 trillion, which is equivalent to 16% to 26% of total global merchandise trade, based on 2018 data. It is thus clear that companies that have placed their production through to global value chains have been hit hard in the process.

The huge losses have forced companies to rethink how they can avoid the associated risks in the future, which has led to a steep increase in the importance of supply chain risk management in their strategic planning. KPMG's Global CEO Survey 2020[64], released in September 2020, has a clear depiction of this change. KPMG conducted two interviews with CEOs of leading global companies before and a few months after the outbreak, asking for their views on the importance of the various risks their companies face. The comparison of the two results clearly shows the change in risk appetite of these companies because of COVID-19. One of the most noteworthy findings is that the importance of supply chain risk has moved from 9th place before the outbreak to 2nd place after

[61] McKinsey & Company, “Risk, resilience, and rebalancing in global value chains”. https://www.mckinsey.com/business-functions/operations/our-insights/risk-resilience-and-rebalancing-in-global-value-chains
[62] Kilic, Kemal, and Dalia Marin. "How COVID-19 is transforming the world economy." VoxEU. org 10 (2020).
[63] McKinsey & Company, “Risk, resilience, and rebalancing in global value chains”. https://www.mckinsey.com/business-functions/operations/our-insights/risk-resilience-and-rebalancing-in-global-value-chains
[64] https://assets.kpmg/content/dam/kpmg/cn/pdf/zh/2020/09/kpmg-2020-ceo-outlook.pdf

the outbreak, making it one of the most important risks for executives across the globe. And the companies interviewed also indicated that they will focus on repositioning their supply chains in the future.

At the national level, while the COVID-19 outbreak has hit the economies of many countries hard, it has also shown the governments of these countries the importance of having a comprehensive industrial chain system. After the initial outbreak, each country enforced an economic shutdown in different time intervals due to the different developmental stages of the pandemic. For the global supply chain, the industrial links located in different countries of the world are at a particular position in the industrial chain, including both production and consumption links. Each of these links comes to a halt one after another. Therefore, the actual operating efficiency of these industries can never reach the normal level while other countries are seriously hit by COVID-19, resulting in a broken chain situation. This causes governments around the world to begin to pay more attention to the reliability, safety and sustainability of the industrial chain.

For example, after the initial outbreak, some countries were short of medical device supplies, and the epidemic prevention supplies provided by the previous global supply chain system could not meet all the needs of countries when they needed them, resulting in a large demand gap. Only those countries with relatively complete production capacity of epidemic prevention supplies could make up for their own needs quickly.

III. The direction of development of the global industrial chain after the pandemic.

Based on the development trend of the global industrial chain that existed before the pandemic and the impacts of the COVID-19, it can be predicted that the direction of development of the global industrial chain will change from the previous "cost and efficiency driven" to a dual-driven approach that takes into account both stability and efficiency. Meanwhile, the risk management model will also undergo dramatic changes. Specifically, the following features will be presented:

(1) Enterprises sensitive to regional isolation and geopolitics will seek to relocate their industrial chain links to regions with more stability and complete industrial chains. According to a report issued by Morgan Stanley[65], the typical industries with above features include the semiconductor, electronic equipment industrial, and more. These companies are characterized by their technological sensitivity and their reliance on global industrial chains, with consumption and production processes spread significantly across different countries and regions. This makes them vulnerable to major shocks of global industrial chains, such as the pandemic and international geopolitical tensions. As a result, these firms have an incentive to gradually relocate the dispersed links in their industrial chains to regions that will provide stable consumption environments and well-established up- and down-stream productions.

(2) For the average firm with a high dependence on global industrial chains, it is likely that in the future it will respond to the growing demand for "production localization" by relocating manufacturers close to consumers. On the one hand, with the development of robotics and automation technology, the low cost of production is becoming less attractive to companies; on the other hand, with the impact of the pandemic, the need for localization is being reinforced by both customers and local governments. For customers, localization of production can make customers get products more quickly and reliably without being disrupted by external shocks; for governments, the formulation of industrial policies to attract production processes to move back shore will significantly help build a complete industrial chain system, and maintain national economic stability. By responding to such demands, enterprises can not only respond to the changing demands of customers in a more timely manner, but also enjoy the subsidies provided by the local government for reshoring, and balancing the stability and efficiency of production.

(3) There will be a dramatic shift in the global industrial chain's risk control model. Before the COVID-19 pandemic, the global industrial chain risk management tended to apply to or focus only on the top suppliers within the chain, ignoring the low-end or small suppliers within the chain that appeared to be insignificant but played a key role in the particular situation of COVID-19. This is especially true for high-value manufacturing: in a worst-case scenario, the absence of any one essential component could lead to a global shutdown or even a disruption of the entire chain. This type of information management system allows companies to have a

[65] Morgan Stanley, "Mapping the New Multipolar World Order".
https://www.morganstanley.com/ideas/coronavirus-global-geopolitics-investing

clear picture of the global supply chain in which they operate, with all information covering key contacts, suppliers and stakeholders in the whole supply chain.

(4) Companies will focus on digitalization related to industrial chains to enhance the stability of its global supply chain. An important impact of the pandemic is its disruption of the current logistics and information exchange pattern of the global industrial chain. In an industrial chain, an upstream supplier manufactures an intermediate product, and ships it to a downstream buyer company, which then uses the intermediate product to produce its own output. However, during the pandemic, the social and economic environment in which the two companies operate is constantly changing, and the actual demands of the downstream company might have dramatically changed after the upstream company finished producing the intermediate product based on previously agreed arrangements, leading to the collapse of the industrial chain operating system worldwide.

The digitalization of global industrial chains enables companies to strategically protect themselves from similar disruptions in the future. With a digitized industrial chain, companies can further take advantage of big data to effectively streamline the selection process of potential suppliers and improve risk control, effectively manage suppliers through cloud computing, and greatly improve the efficiency of logistics and transportation through automation and leveraging the Internet of Things (IoT). Finally, the outbreak of COVID-19 has also made multinational companies realize the importance of production automation. In the aftermath of the pandemic, robotics will be more widely used to mitigate the negative impact of employee travelling restrictions on the industrial chain.

IV. New opportunities may be presented to the financial industry

The new global industrial chain developments bring considerable opportunities for the financial industry, but require financial institutions to be proactive and agile in adapting to the trends. Specifically, the financial industry will face the following opportunities:

(1) The digitalization of the global industrial chain is an opportunity for financial institutions to strengthen cooperation with clients that are carrying out relevant reforms. Financial institutions may embed financial services systems in the new digital system of industrial chains, and fundamentally enhance the information sharing mechanism and synergistic effect between financial institutions and clients. For clients that have completed the migration of their industrial chains, new supply chain finance business can be developed. The core of supply chain financing is to access the information of clients' payables, receivables, and actual business transactions, which generates large costs for and occupies great amount of human capital of financial service companies in the traditional supply chain financing business. If financial institutions can embed the information requirements into the clients' digital business operating system, it will greatly optimize the effectiveness and reliability of supply chain financing services. This change will simplify complicated procedures, reduce costs, and effectively strengthen the service capabilities of supply chain finance operations.

In the process of digitalization, financial institutions can establish an integrated information system covering all links of the industrial chain. With the support of this system, financial institutions can further develop supply chain financing activities by extending to both upstream and downstream companies of current clients. Thus, the capacity of supply chain finance services can fully meet the demands of core clients. At the same time, by leveraging the advantages of digital and intelligent technology, financial institutions can establish a standardized platform for online customers to apply for financing services and get approval results automatically.

(2) For clients that are about to relocate their industrial chains, financial institutions should actively research the migration trends and seize the opportunity to realize the internationalization of supply chain finance services. Global banks should make full use of their existing global networks to strengthen their capabilities in conducting due diligence on their supply chain offshore counterparties. Companies that decide to relocate their industrial chain will involve a large amount of infrastructure investment, such as factory plants and machinery, in the process of repositioning their global industrial chain, and these capital-intensive investment projects will generate huge financing needs. In addition, if there are no established financing channels and financial service providers in the relocation location, there will be significant business development opportunities for financial service companies.

After the relocation of industrial chains, the upstream and downstream partners and the market environment faced by the client company will change dramatically. Clarifying and reviewing the new upstream and downstream partners and their financial situation will be one of the main obstacles to the development of supply chain financing services. If financial institutions can proactively make plans as early as when the client company determines the migration intention, the agility and quality of the supply chain financial business will be greatly improved.

In conclusion, after COVID-19, a new round of global value chain migration will bring many financial service opportunities. If financial institutions are able plan strategically and prepare in advance, they will more effectively and quickly take over the relevant financial service opportunities under the new industrial chain trends.

References

[1] Kilic, Kemal, and Dalia Marin. "How COVID-19 is transforming the world economy." VoxEU. org 10 (2020).

[2] McKinsey & Company, “Risk, resilience, and rebalancing in global value chains”. https://www.mckinsey.com/business-functions/operations/our-insights/risk-resilience-and-rebalancing-in-global-value-chains

[3] Morgan Stanley, “Mapping the New Multipolar World Order”. https://www.morganstanley.com/ideas/coronavirus-global-geopolitics-investing

[4] https://assets.kpmg/content/dam/kpmg/cn/pdf/zh/2020/09/kpmg-2020-ceo-outlook.pdf

[5] Pisch, Frank. "Managing Global Production: Theory and Evidence from Just-in-Time Supply Chains." *SEPS Discussion Papers* 2020-08 (2020).

AMADEO JENSANA - Director of Economic Programs, CASA ASIA, Sant Cugat Del Valles, Spain

EU-China Research and Innovation Relations

Throughout the last decade, China's progress in the field of research and innovation has been remarkable. By 2019 investment in R&D to GDP stood at 2.23%. In areas such as telecommunications equipment, high-speed railways, commercial aviation, artificial intelligence, or e-commerce, Chinese companies compete globally with great success. They now account, for instance, for 35% of world patents in 5G technologies—the first time China would lead a new generation of mobile telephony from its inception.

Under these circumstances, the strength of China in innovation poses a significant challenge for the European Union and its companies in a future increasingly marked by leadership in innovation. And yet, this comes not without opportunities for collaboration between these two parties.

Since 2013, the European Union and China have launched several "flagship initiatives" to develop joint research projects within the "Horizon 2020" program framework. For the period 2018-2020, the areas chosen include: food, agriculture and biotechnology, environment and sustainable urbanization, surface transport, safer and greener aviation, and biotechnologies for the environment and human health.

Likewise, the "EU-China co-funding mechanism," a joint initiative through which companies, research centers, universities, and other agents develop research projects in areas considered priorities, has extended to: new-generation information networks, intelligent and green manufacturing, safe, clean and efficient energy, advanced, effective, safe and convenient health technologies, marine equipment, space, new materials, large research infrastructures and public security.

Among the priority sectors, two stand out in particular:

In health, the crisis generated by Covid 19 called out for further collaboration across health governance, research, and prevention (e.g., vaccine development for infectious diseases).

In environment and sustainability, the EU recently laid out the "Green Deal" framework. Its objective is to achieve reduction in pollution, to promote clean technologies, and to prevent environmental degradation. China has also set tremendously ambitious targets to control the adverse effects of pollution. There is thus great interest in technology cooperation for lowering greenhouse gas emission, improving air and water quality, energy efficiency, and renewable energy.

In the year 2021, the new EU investment program for research and innovation "Horizon Europe" will be launched, replacing Horizon 2020. The program will reflect a clear international focus, promoting collaboration with third countries, for which China will undoubtedly be among the main priorities at the global level.

Finally, regional cooperation between China and the European Union in research has yet to receive much attention to date.

In Europe, more than 120 “smart specialization” strategies were implemented over the last decade. Their objective is to identify regional competitive advantages, prioritizing investment in innovation accordingly. Through European Structural and Investment Funds as well as national and regional funds, more than 67 billion Euros have been channeled into developing regional specialization in innovation since 2011.

In China, too, the areas of Beijing-Tianjin-Hebei, the Yangze River delta (Shangai-Jiangsu-Zhejiang) and the Greater Bay Area (Guangdong-Hong Kong-Macau) now bear much more developed regional innovation ecosystems than the rest of the country due to the availability of more significant financial resources and the existence of better technology centers, clusters and universities.

While the Chinese government made significant strides in innovation development in the central and western provinces, the existing regional disparity has persisted. Traditionally, the structure of innovation in China has been mainly directed by the central government through large programs that prioritized real-time adjustments of technological capacities. The "Made in China 2025"

strategy is a notable example. Its main objective is to reduce foreign dependence on key technologies such as semiconductors, biotechnology, automobiles, robotics, and IT.

However, not all provinces in China shoulder the same development capacities. Thus, national strategies have been progressively buttressed at the regional and provincial levels in accordance with the intrinsic characteristics and potential of each region.

The EU experience in this field can prove useful to promoting cooperation between Europe and China where complementary. Hence, in future EU programs with China, cooperation at the regional level in innovation is expected to be prioritized.

In conclusion, China and the European Union stand to gain with the consolidation of global alliances in innovation to respond to existing challenges, reduce redundancy, and promote further resource efficiency.

RAVI RAMAMURTI - University Distinguished Professor of International Business and Director, Ctr for Emerging Markets, Northeastern University (Boston, United States).

Reflections on Reverse Innovation

October 11, 2020

Reverse innovation is the process by which innovations first adopted in developing countries such as China, India, or Thailand diffuse later to developed countries, such as the United States, Germany, the U.K. or Japan (Govindarajan and Ramamurti, 2011). This is the opposite of what happened for most of the two centuries after the industrial revolution, when technological innovations went from industrialized Europe and North America to the rest of the world, including, sometimes, to developing countries. After World War 2, as many developing countries escaped from colonization to become independent nations—and especially since the 1980s, when they embraced globalization—these countries began to import developed-country innovations to speed up their own growth. Think, for instance, of the cellular telephony revolution in so many developing countries that could not have happened without core technologies and innovations from the West. But since about 2000, a number of developing countries have started to produce innovations of their own, some of which have gained traction in developed countries, leading to the phenomenon of reverse innovation. I expect examples of reverse innovation to increase in the coming years.

In this note, I will describe three sources of reverse innovation. The first arises from the adaptation of existing Western products for consumers with very different needs and purchasing power in developing countries. The second arises from innovative practices that developing countries may have honed before developed countries, because they've had more experience dealing with certain problems. And the third arises from the capacity of some developing country firms to develop leadership positions in new or emerging industries (think Huawei in telecom equipment). I will discuss each of these sources briefly before concluding with suggestions for future research on innovation in developing countries.

1. Adapting Western products for developing countries

In the discussion below I use "Western" as short-hand for all industrialized countries, including not just US, Canada, and Western Europe, but also countries such as Japan, Australia, New Zealand, or Singapore. The first source of reverse innovation arises from the need to tailor existing Western products to the distinctive social and economic conditions of developing countries. For instance, the economic pyramid in developing countries has roughly 62 percent of its population in the lowest category of households with daily per-capita income (in PPP terms) of only US$ 2.20 per day; these consumers live hand to mouth and cannot afford most Western products (data in this paragraph is from McKinsey (2010). Even the middle class in these countries has an average daily per-capita income (PPP) of only US$7 per day. Only the most affluent 2 percent of the population has an average daily per-capita (PPP) income high enough (US$42 per day) to afford Western products. Therefore, Western products have to be fundamentally redesigned if a firm wants to tap the middle or bottom of the economic pyramid in developing countries. The lower education or skill level of users, and institutional voids that make sophisticated products hard for the average consumer to use, are other reasons why Western product have to be fundamentally redesigned before they can gain traction in developing countries.

The initial wave of innovations for developing economies, such as China and India, has been largely based on process innovations to make products ultra-affordable, by lowering prices as much as 80-90 relative to those in industrialized countries. Williamson (2010) calls the capability for doing this "cost innovation." Sometimes this entails taking bells and whistles out of products sold in rich countries, such as substituting a monochromatic display for a color display or using a dot-matrix printer instead of a laser printer. The resulting products are sometimes described as "good enough" products that offer all essential features at an affordable price (Gadiesh et al, 2007). But, more commonly, the situation calls for thoughtful value analysis, informed by deep customer insights, to identify the optimal combination of features and price. Proctor & Gamble's diapers for Brazil, for instance, are branded as Pampers Basica, where "basica" implied that the product had all the essential features of a good diaper (and not "basic" in the way the word might be understood by English speakers) but cost only 30 percent of Pampers sold in the US (Kanter and Bird, 2008). Sometimes, adaptation for developing countries requires *adding* features not offered in developed countries, such as battery back-up for medical devices or a flashlight in mobile telephones.

Another approach to providing value products for developing countries is through **business-model innovation**. A great example is wireless telephony, where local firms in developing countries use business models that are starkly different from ones used in developed countries, even though the core technologies (exchanges, switches, cell towers, handsets) may be identical. In developing countries, telephone companies sell handsets outright rather than leasing them to users; many handsets are of the "good enough" variety, offering essential features at one-fourth or less the price as cellphones sold in developed countries; talk time costs USD1-5 cents per minute, compared to USD20-50 cents per minute in developed countries; customers prepay for services rather than pay at the end of the month; talk time is sold in microscopic quantities to fit the tight budgets of poor consumers and distributed through mon-and-pop retailers rather than through company-owned shops; all forms of paperwork are replaced with electronic communications and documentation; and so on. The result is that for the first time ever telephony has become affordable to hundreds of millions of consumers in the bottom of the economic pyramid. At the same time, the asset-light business models of wireless telephone companies, such as Bharti Airtel in India or Zain of the Middle East, was profitable, despite ultra-low prices and millions of micro-consumers.

Local companies in developing countries usually take the lead in pursuing affordability innovation, because they understand the needs of emerging-market customers better than foreign multinationals, they have a low-cost mindset, and they have no legacy of high-margin products to protect. Foreign multinationals reluctantly join in this kind of innovation to defend their position in rapidly-growing developing countries and to curb the growth of future competitors who might someday challenge them in their own backyards, i.e. in developed-country markets. GE's former CEO, Jeffrey Immelt, was prophetic when he said: "GE has tremendous respect for traditional rivals like Siemens, Philips, and Rolls-Royce. But it knows how to compete with them; they will never destroy GE. By introducing products that create a new price-performance paradigm, however, the emerging giants very well could" (Immelt et al, 2009). Like many other U.S. multinationals, General Electric embraced reverse innovation and used it to develop inexpensive and portable products, such as ultrasounds and EKG machines, for sale worldwide, including in developed countries (Govindarajan and Trimble, 2011).

2. Learning from developing countries in niche areas

In the examples of reverse innovation cited above, the products in question were first introduced in developed countries, i.e. the industry's first-movers were developed-country firms, such GE, Philips, Siemens, Deere, AT&T, or Ericsson. The process innovations to lower cost or simplify products for developing countries led to new designs and formats that later found use in developed countries. For instance, a portable, easy-to-use ultrasound developed for China could be sold in the U.S. to small doctors' offices that couldn't afford GE's traditional, bulky and expensive ultrasound machines, thereby completing the reverse innovation loop.

The COVID-19 crisis revealed another type of situation in which reverse innovation could be highly promising, namely, situations in which developing countries have more experience dealing with a problem than developed countries. The table below shows the death rate from COVID-19 in several countries. While there are significant differences in the death rate among developed countries, the death rates are one or two orders of magnitude lower in the Asian/African countries shown than in the US or Europe.

COVID-19 Deaths per Million Population (as of October 10, 2020)

U.S. and other Developed Countries		Selected Asian and African Countries	
USA: **661**	Italy: **598**	China: **3**	S. Korea: **8**
Canada: **254**	Sweden: **583**	Hong Kong: **14**	Taiwan: **0.3**
Denmark: **115**	U.K.: **629**	Rwanda: **2**	Thailand: **0.8**
France: **500**		Sierra Leone: **9**	Vietnam: **0.4**
Germany: **116**		Singapore: **5**	Uganda: **2**

Source: https://www.worldometers.info/coronavirus/.

As of October 10, 2020, Vietnam, with almost 100 million people who live in close proximity to China, had only 1,109 cases and 35 deaths (or 0.4 deaths per million people, compared to 661 deaths per million people in the United States). The low COVID-19

death rate isn't limited to authoritarian governments such as China, Rwanda, or Vietnam but is also seen in democracies such as Hong Kong, Singapore, Taiwan, and Thailand. A major explanation for why these countries have vastly outperformed Western economies is that they've had more experience fighting other epidemics before COVID-19 arrived (Bloomberg, 2020). For instance, China, Hong Kong, and Taiwan learned lessons from dealing with SARS (2002-03) that improved their preparedness for fighting COVID-19. South Korea also learned important lessons from its experience with MERS in 2015 (which resulted in 186 cases and 38 deaths); in its aftermath, the South Korean government established a legal foundation for infectious diseases with a comprehensive contact tracing strategy and started a program for twice-a-year epidemic simulation training. In 2003, Singapore created a multi-agency task force to coordinate interventions and messaging during pandemics; that task force tackled the H1N1 pandemic in 2009, the Zika outbreak in 2016, and reassembled to tackle COVID-19 in January 2020. African countries, such as Rwanda, Sierra Leone, and Uganda, learned from their experiences fighting Ebola, HIV, Zika, and traditional infectious diseases, such as cholera and tuberculosis.

Prior experience fighting other infectious diseases gave the Asian and African countries three advantages: (1) policymakers were familiar with the full range of public health tools available to respond to the threat of the pandemic, rather than just blunt instruments, such as lockdowns or sophisticated medical treatment; policymakers took preemptive measures, such as thorough inspection and quarantining at borders or aggressive testing and quarantining. (2) citizens also understood public helath drills such as mask wearing, social distancing, or handwashing, and the importance of complying with public health directives; and (3) public health institutions were equipped and ready to respond quickly, having learned from prior epidemics that the failure to implement a comprehensive, national strategy to fight the epidemic could be catastrophic.

Between January and March, before COVID-19 arrived on American shores, U.S. policymakers at the state and federal levels could have learned a great deal from the Asian and African exemplar countries about how to stop COVID-19 in its tracks. But, for a variety of reasons, no one paid attention to what those countries did or sought to learn from their experience. Ramamurti (2020a and 2020b) discusses what the West could have learned from these Asian and African countries about fighting COVID-19 and provides two examples of actual reverse innovations from South Korea to the US (for COVID-19 testing, by Mass General Hospital) and from Africa to the US (for COVID-19 contact tracing, by the Commonwealth of Massachusetts). In both cases, the lessons learned and transferred to the US helped fight COVID-19 more effectively. In hindsight, a lot more borrowing of such ideas should have been done and could have saved thousands of lives and billions of dollars. But hardly anyone, including this author, realized in early 2020 how helpful reverse innovation could have been to the US. It was only in July 2020 that Northeastern University's Center for Emerging Markets created a website, *Reverse Innovation to Fight COVID-19* (https://damore-mckim.northeastern.edu/reverse-innovation-to-fight-covid-19/), with over 50 actionable ideas that the US and other developed countries ought to consider borrwing from developing countries to fight off the pandemic.

3. Developing-country firms as first-movers

The third possible source of reverse innovation is when developing countries are actually first-movers in a new business or industry. International business scholars have been skeptical about the ability of developing countries to go beyond affordability innovation or being copycats to creating truly new-to-the-world products. It's reasonable to wonder if developing countries can muster the talent, capital, and ecosystems necessary for such breakthrough innovations, but there is growing evidence that they can. As Casanova and Miroux (2019) have pointed out, innovation in emerging markets has already expanded beyond simple process and cost innovations to more fundamental technological innovations, based on R&D and patenting; they argue that developing-country firms are turning from copycats to leaders. Yip and McKern (2014) also note the shift in China's contributions from that of imitation to innovation, with a range of examples from communication gear and transportation to AI and digital businesses. A company like Huawei is a poster child for how developing-country firms can challenge industry leaders like Ericsson and Nokia, and it is certain that other such firms will emerge in the future.

China, in particular, is taking very seriously the goal of catching up with the West on technology and scientific research. Kai-Fu Lee (2018) views China as one of the world's two AI superpowers. The "Made in China 2025" program, which has generated much controversy in the US, reflects the scale of the Chinese government's ambition and strategic intent in high-tech industries. China is investing heavily in educational and research institutions and in the R&D programs of Chinese firms, including state-owned enterprises. It has taken several measures to build top talent in key fields, including attracting returnees with deep technical know-how back to

China. Its companies are now filing more patent applications than US companies, although the quality of these patents is in dispute. China is producing nearly half as many unicorns—startups with a market valuation of $1 billion or more—as the United States, and the venture industry there is attracting sums comparable to that of US startups. China is also creating ecosystems to support the development and adoption of future technologies, such as autonomous driving or electric vehicles, through imaginative public-private partnerships.

Other emerging economies, including Brazil, India, Mexico, and Turkey are making similar attempts in a more limited and piecemeal fashion, but collectively these initiatives could add up to significant challenges to industry leaders in the US, Europe, and Japan.

Given these trends, the potential for reverse innovation will grow in the future. We need serious research that asks all the important questions about innovation in emerging markets and marshals thoughtful answers. Such research should analyze and explain past developments even as it tries to be forward-looking. It should include in-depth studies of key emerging economies like Brazil, China, and India, and key industries, such as pharmaceuticals, financial services, and digital businesses. It should draw on experts from around the world to grapple with the empirical and analytical issues raised by this new trend. The articles in this volume are a useful starting point for research on reverse innovation. C.K. Prahalad liked to say that his work focused not on "best practices" but on "next practices," i.e. practices that may be in the periphery today but could occupy center-stage tomorrow. I suspect reverse innovation is one such idea. Thoughtful research on reverse innovation could pay handsome dividends to managers and policymakers in the coming decades.

References

Casanova, L.; Miroux, A. 2019. *Emerging Markets Report 2019. Building Constructive Engagement*. 8 November 2019. ISBN-13: 978-1-7328042- 3-4. . ISSN 2689-0127 https://ecommons.cornell.edu/handle/1813/66953

Fox, Justin. 2020. What prepares a country for a pandemic? An epidemic helps. *Bloomberg.com* (March 18). https://www.bloomberg.com/opinion/articles/2020-03-18/covid-19-response-better-in-countries-with-sars-mers-coronavirus

Gadiesh, Orit, Leung, P. and Vestring, T., 2007. The battle for China's good-enough market. *Harvard business review*, *85*(9).

Govindarajan, Vijay and Ramamurti, Ravi. 2011. Reverse innovation, emerging markets, and global strategy. *Global Strategy Journal*, *1*(3-4), pp.191-205.

Govindarajan Vijay and Trimble, Chris. 2012. *Reverse innovation: Create far from home, win everywhere.* Harvard Business Review Press.

Immelt, Jeffrey R., Govindarajan, Vijay, and Trimble, Chris. 2009. How GE is disrupting itself. *Harvard business review*, *87*(10), pp.56-65.

Kanter, Rosabeth, M. and Bird, Mathew. 2008. Proctor & Gamble Brazil (A): 2 ½ Turnarounds. Harvard Business School Case No. 9-308-081.

Lee, Kai-Fu. 2018. *AI superpowers: China, Silicon Valley, and the new world order*. Houghton Mifflin Harcourt.

Ramamurti, Ravi. 2020a. Using reverse innovation to fight COVID-19, *Harvard Business Review* online (June 17, 2020)

Ramamurti, Ravi. 2020b. Crowdsourcing ideas to beat the pandemic. *Harvard Business Review* (digital), forthcoming.

Williamson, Peter J., 2010. Cost innovation: preparing for a 'value-for-money'revolution. *Long Range Planning*, *43*(2-3), pp.343-353.

Yip, George and McKern, Bruce, 2014. Innovation in emerging markets–the case of China. *International Journal of Emerging Markets*.

ZHAOHUI XUAN – Leading Researcher at Chinese Academy of Science and Technology for Development (CASTED), Ministry of Science and Technology (Beijing, China)

Development and challenges: China in the 2010s

If we are to discuss what major changes have taken place around the world in the last decade, the rise of China would be undoubtedly one of the important topics. In 2010, China surpassed Japan in GDP terms, becoming the second largest economy in the world; 9 years later, China's GDP in absolute terms reached RMB99.1 trillion or USD14.4 trillion. Based on constant prices, the average rate of China's GDP growth exceeded 7% during these 9 years, and it was considered one of the countries with the fastest GDP growth in the world. With the constant optimization of industrial structure, the proportion of the service industry value added in GDP rose from 44.2% in 2010 to 53.9% in 2019. In other words, China has become a service-oriented economy.

China performed remarkably well not only in its economy, but also in its innovation capacity, which was tremendously strengthened over these years. The gross domestic expenditure on R&D as a percentage of GDP was up from 1.71% in 2010 to 2.19% in 2019, surpassing the overall level of EU28 that stood at 2.03% in 2018. The emerging industries represented by ICT developed rapidly, with the constant expansion of the size of the digital economy. For instance, companies like Huawei, Tencent and Alibaba became the world-renowned innovative enterprises. High-speed railways serving as a new greeting card boasted an increase from an operation length of 5,100km in 2010 to that of 35,000km in 2019, and it is envisaged that China's high-speed railways will continue to maintain its growth trend over the next five years. In addition, science, technology and innovation has changed the way of life and mindset of the Chinese people across the board. There were significant improvements in their employment, social security, housing and education. It was planned by the Chinese central government to radically address its poverty issue by the end of 2020 and to enable all the Chinese people to shake off poverty.

Moreover, China encountered in the course of its development almost all the problems once faced by developed countries. However, the attention given by the Chinese people to their environmental concerns, such as clean air and clean water resource, has never been so close as today. In 2019, China's aggregate energy consumption reached 4.86 billion tons of standard coals, while it was 3.61 billion tons of standard coals in 2010. Although its energy consumption growth was not high compared with its economic output growth, how to reduce its dependence on fossil energy remained the toughest issue faced by China. With the constant growth of social wealth, the gap between the rich and the poor became increasingly prominent. The development gap between regions, between urban and rural areas and between different social stratums was also widening up day by day. According to data from the National Bureau of Statistics (NBS), in 2019, the Gini coefficient of per capita disposable income of Chinese residents was still as high as 0.465; the per capita disposable income of residents in China's western region accounted for only 60% of that in its eastern region; and the per capita disposal income of its rural residents accounted for only 37% of that of its urban residents.

Going forward, China, like any other country or region in the world, will be confronted with tremendous uncertainties in terms of economic and social development. There is no doubt that the Chinese economic development has benefited from the deepening of the advancement of globalization since its reform and opening up over the past 40 years, especially since the beginning of the 21st century. However, over the past decade, especially since 2018, complex changes have taken place in the international landscape, with the surge of deglobalization, as a result of which the industry chains of the global division of labor were destroyed, thus impeding the enhancement of production efficiency and ultimately leading to the global economic recession. Since the beginning of 2020, the novel coronavirus pneumonia or COVID-19 has spread to every corner of the world, and unfortunately, the first round of the pandemic is not yet over. The pandemic has not only caused painful disease to human beings, but also made the already-severely-weakened economy even worse, thus hindering the pace of human social progress. For this reason, we shall need more science and technology achievements, in order to inject new vitality and new kinetic energy to world's economic growth and people's well-being. Apart from this, we shall all the more need the governments of various countries, enterprises and individuals to make concerted efforts in order to co-build a more open, cooperative and inclusive world.

BOOK REVIEW

FROM EMI FACULTY ADVISORY COUNCIL MEMBERS

Mike W. Peng - Chair of Global Strategy, Jindal School of Management, University of Texas at Dallas, United States

BOOK REVIEW: Lourdes Casanova and Anne Miroux, 2020, The Era of Chinese Multinationals: Competing for Global Dominance, San Diego, CA: Academic Press/Elsevier.

China not only has the world's second largest economy, but also the second largest group of multinationals on the Fortune Global 500 list. In 2018, 111 Chinese multinationals made the list—vis-à-vis 126 from the United States. In comparison, Japan, Germany, France, and Britain had 52, 31, 28, and 22 multinationals, respectively, on the same list. This is one of the most important data points that open Chapter 1 of *The Era of Chinese Multinationals: Competing for Global Dominance.*

A voluminous literature consisting of hundreds of books and thousands of articles exists on U.S., Japanese, and European multinationals. Prior to reading *this* book, I have never read a single book on Chinese multinationals. While there are now hundreds of articles on Chinese multinationals (a few of which were written by yours truly), each article, due to length limitations, offers a relatively narrow perspective. Clearly, *The Era of Chinese Multinationals* is an important and timely book, filling a gap for the lack of *comprehensive* coverage of the newest breed of multinationals in the world.

Casanova and Miroux have done a great job in marshalling statistical evidence documenting the scale and scope of the rise of Chinese multinationals in one industry after another (Chapters 1–3). This is expected. Of the ten chapters, there are three other chapters offering high-level overviews: History of Chinese reforms that started 40 years ago (Chapter 4), China's emergence to become an innovation hub (Chapter 7), and Chinese multinationals' move beyond price competition (Chapter 8). These well-written chapters are also what I would expect. Most reports of this nature (such as the UN's *World Investment Report* series) would cover similar grounds.

However, I am pleasantly surprised by four in-depth case studies, each commanding one full *chapter*: ICBC (Chapter 5), State Grid (Chapter 6), Tencent (Chapter 9), and HNA (Chapter 10). Both the idea to have these chapter-length case studies representing 40% of the chapters—instead of just having only statistical information and high-level policy overviews—and the specific selection of these four multinationals are commendable and set this book apart. At the end of the day, as each firm is unique, the stereotypical "Chinese multinational" probably does not exist. Therefore, how representative the selected case-study firms are becomes an issue for any book like this one struggling with both breadth and depth. The authors have chosen not to focus on the handful of widely-reported multinationals such as Alibaba, Baidu, and Huawei. Instead, they have sensibly selected four sizable firms that have been relatively underreported: a bank (ICBC), a utility (State Grid), a gaming and Internet service provider (Tencent), and an airline (HCN).

Of the four case-study chapters, I especially appreciate the chapter on State Grid. This is because State Grid is the *largest* of all Chinese multinationals and the *second largest* in the world—it is No. 2, not a typo for No. 20 or No. 200—on the Fortune Global 500 list (by revenue in 2018). Yet, prior to reading this book, I have never seen any report on this obviously colossal but mysterious firm. Considering how much media attention has been lavished on the largest Fortune firm (Walmart) and how much reporting has been spilled on the likes of Alibaba, Baidu, and Huawei, the conspicuous lack of research on State Grid is puzzling. In my own teaching, when going over the same Fortune rankings that Casanova and Miroux use in Chapter 1, I cannot answer the question "What exactly does State Grid do?" Now I can (!). It turns out that State Grid is not only the largest utility company in China, but is also active overseas. Starting in 2007, it has entered Russia (2007), the Philippines (2009), Brazil (2010), Australia (2012), Portugal (2012), Italy (2014), Hong Kong (2014), and Greece (2016). State Grid has also become a major developer of "green energy," which issues a corporate social responsibility (CSR) report every year.

Overall, amassing excellent data on the scale and scope of Chinese multinationals, providing high-level overviews on the forces behind such expansion, and weaving revealing case studies that dissect the inner workings of four highly successful (but often times not widely-known) firms combine to make *The Era of Chinese Multinationals* an outstanding contribution. The book does contain a few small imperfections. For example, State Grid is misspelled as "State grid" (p. 121). Figure 1.4 attempts to convey too much information, with a font size that is too small and a color scheme (black-and-white only) too limiting (p. 8). Its original—Figure 1.3 in the *Emerging Market Multinationals Report* (p. 6) that the authors have kindly given to me earlier—is more effective. While one can always ask for more, this book is highly recommended to anyone interested in multinationals, emerging markets, and China.

The year 2018—the most recent year covered by the book—is probably a high-water mark for Chinese multinationals. This was a year during which President Trump launched the initial salvos of his trade war with China. The growth of Chinese multinationals—or for that matter multinationals from any country—has been enabled by a generally accommodating institutional environment. If that environment has turned to become less accommodating (or even more confrontational—as in the case of the U.S.-China relationship since 2018), can this growth continue? The authors in their conclusion argue that "there is no going back" (p. 220). I wish they are right. But given the destruction of overseas demand thanks to COVID-19 and the worsening political sentiments towards China not only in the United States but also in Australia, Canada, India, and Japan, will Chinese multinationals be able to continue to grow? This is a crucial question that a future edition of this excellent book will need to answer.

Cornell
SC Johnson College of Business

EMERGING MARKETS INSTITUTE

www.johnson.cornell.edu/Emerging-Markets-Institute
https://hdl.handle.net/1813/66978