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KNOWLEDGE MANAGEMENT OF EMERGING ECONOMY MULTINATIONALS

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ABSTRACT

Knowledge is critical to the survival of emerging economy multinationals (EMNEs), who are confronted by a lack of internal competitive capabilities and external challenges associated with diverse institutional environments. They thus must manage and orchestrate their knowledge globally for ultimate catch up. This article systematically reviews literature concerning EMNE knowledge management using content analysis of 93 articles in 17 leading journals across 7 major disciplines from 2000 to 2020. Applying the antecedent-process-outcome (APO) framework, we identify three major themes: knowledge-seeking strategy, knowledge transfer and innovation. We discuss knowledge frontier issues, directions for future scholarship, and avenues for greater interdisciplinary cross-fertilization.

Keywords: Knowledge Management, Innovation, Emerging Economy Multinational, Review, Content Analysis

INTRODUCTION

Knowledge management is crucial for the survival and sustainability of firms, whose ability to manage internal knowledge and access external knowledge is one of the most strategic yet challenging tasks. The importance and complexity of knowledge management is magnified for firms with cross-border operations given amplified competitive pressure from global markets and heterogeneities across countries. The knowledge management of MNEs has been a long-established IB topic, traditionally examining how MNEs from advanced economies (AMNEs) foster innovation by tapping into diverse knowledge in different locations, integrating and transferring knowledge across national boundaries (Kogut & Zander, 1993; Cantwell & Mudambi, 2011; Andersson, Dasí, Mudambi & Pedersen, 2016).

The growth of emerging economies[1] and the rise of EMNEs has drawn scholarly attention (Buckley, Clegg, Cross, Liu, Voss & Zheng, 2007; Luo & Tung, 2007; Aulakh, Kundu & Lahiri, 2016; Liu & Giroud, 2016; Cui, Fan, Liu & Li, 2017). FDI flows from emerging economies have become a dominant force in the shift of the global innovation locus (UNCTAD 2005; Zhao, Tan, Papanastassiou & Harzing, 2020). Rapid EMNE rise prompted investigation of the sources and patterns of knowledge flows, as well as the processes of knowledge management of EMNEs and related outcomes (Deng, 2009; Lu, Liu & Wang, 2011; Awate, Larsen & Mudambi, 2015; Buckley, Munjal, Enderwick & Forsans, 2016; Kotabe & Kothari, 2016; Liu, Gao, Lu & Lioliou, 2016; Liu & Meyer, 2020). OFDI by Chinese and Indian MNEs shows positive effects on their innovation when geared towards advanced economies (Thakur-Wernz, et al., 2019; Wu & Park, 2019), while other studies show the importance of reverse knowledge transfer in catch-up strategies (Kotabe, Jiang & Murray, 2011; Buckley, Hashai & Niron, 2014). Bernat and Karabag (2019) find the Brazilian MNEs such as Petrobras and WEG systematically monitor their host environments to look for windows of opportunity and consistently invest in learning mechanisms to overcome shortcomings in knowledge upgrading. Thus, in contrast to AMNEs, EMNEs face a lack of competitive organizational capabilities internally,

[1] 'Emerging economies are defined per the IMF (2020); they include those not classified as advanced economies or low-income developing nations

due to their latecomer position, and external challenges associated with the diverse institutional environments of advanced and emerging economies. Thus, the strategic focus to level with AMNEs in terms of innovation achieved through rapid internationalization to seek knowledge for upgrading internal capabilities has been imperative for EMNEs. These examples thus illustrate the way in which they manage and orchestrate their knowledge globally in response to catch up challenges.

While the scholarly inquiries reflect a changing competitive landscape, a comprehensive review of the state of knowledge is lacking. While a few recent reviews (e.g., Andersson et al., 2016; Perri & Peruffo, 2016; Vrontis & Christofi, 2019; Papanastassiou, Pearce & Zanfei, 2020) summarized research on knowledge management or R&D globalization, they mainly focused on AMNEs in advanced and emerging economies or on domestic firms in emerging economies rather than exclusively on EMNE knowledge management. Thus far, there has been no reviews focused on EMNE knowledge management. This omission has not only limited our understanding of EMNEs' distinct patterns and paths to knowledge management, but also resulted in a lack of a systematic and cohesive overview of the development of the field. To address this gap, this study aims to provide a comprehensive and systematic overview of the current state of knowledge in EMNE knowledge management by adopting the antecedent-process-outcome (APO) guiding framework. We have three main objectives: 1) review and synthesise the extant literature on knowledge management of EMNEs; 2) bridge different streams of literature across multiple fields of research; and 3) identify knowledge frontier issues that can provide fruitful avenues for future research.

To ensure consistency in our review process, we adopt Andersson's et al (2016) definition of knowledge and define EMNE knowledge management as the multi-dimensional organizational learning processes of the firm and consider relevant studies that examine means and the processes of knowledge management, including learning, creation, acquisition, transfer, integration, and dissemination. Relatedly, we see innovation as the outcome of EMNE knowledge management activities, defined as new products, processes, and patents, as well as the overall innovativeness of an EMNE. We refer to MNEs as firms operating in at least two countries by engaging in FDI to exercise control over value-adding activities internationally (Luo & Tung, 2007). Furthermore, 'emerging

economies' are defined according to the country classification of the International Monetary Fund (IMF) (Luo, Zhang & Bu, 2019). The APO logic (see e.g., Narayanan, Zane, & Kemmerer, 2011; Pisani & Ricart, 2016; Pisani et al., 2017) allows us to categorize and analyze the sample articles systematically. We treat the literature on three fronts. The 'antecedents' category consists of studies that focus on determinants of EMNEs' OFDI decisions, e.g., knowledge-seeking motives and location choices. The 'process' category contains articles on the mechanisms and processes of cross-border knowledge management of EMNEs, particularly focusing on reverse knowledge transfer and international migration as a knowledge transfer channel. The 'outcomes' category includes articles concerning EMNE innovation as the outcomes of their knowledge management. We then synthesize the three streams in terms of key findings, debates, knowledge frontier issues, and future research venues.

Undertaking a systematic review over 20 years and covering 17 journals from 7 major disciplines, our study makes three contributions. First, conducting a theme-based systematic content analysis, it contributes to EMNE knowledge management literature by offering a systematic overview in way of linking EMNE internationalization to knowledge-seeking motives, transfer processes, and innovation outcomes. This affords a structured and integrative understanding of the way in which EMNEs deal with knowledge management issues and challenges in a dynamic global environment. Particularly, we examine the home and host locations of EMNEs and highlight the underexposure of many emerging economies in EMNE knowledge management research: the current understanding is narrowly focused on EMNEs from a handful of countries, questioning the 'global' nature of EMNE knowledge management research. Second, we offer an analysis of the research methodologies employed whereby we contribute to the research area by highlighting the imbalance between quantitative and qualitative methods and provide suggestions on alternative methods and data types to overcome the methodological and data-related biases. Third, we identify three theme-based and three cross-theme research gaps and propose several theoretical approaches to move the field forward. For the former, we contribute to the literature by proposing underexplored the-

oretical lenses (i.e., dynamic capabilities view for knowledge-seeking OFDI, organisational ambidexterity for knowledge transfer process, and imitation and absorptive capacity perspectives for innovation outcomes). For the latter, we critically evaluate extant theoretical and empirical approaches and contribute to the literature by proposing three underutilized perspectives (i.e., the organizational unlearning perspective, unlearning and (re)learning in an emerging digital economy, and a more diverse and balanced perspective of the geographic context) to extend existing knowledge about the phenomenon.

REVIEW PROCESS

Outlet Selection

To provide a rich overview, we focus on articles in high-impact journals in International Business, Innovation, Management, Strategy, Organization Studies, Operations and Technology Management, and Economic Geography. In line with journal selection methods applied in IB high-impact reviews, we only include 28 peer-reviewed journals ranked 3, 4 or 4* in the AJG 2018 list (see Table 1)

Our review covers the period from 2000 to 2020 for two reasons: 1) there has been an unprecedented surge in emerging economies in global R&D FDI post 2000 (UNCTAD, 2005), accompanied by the start of the period of EMNEs gaining new momentum in the world economy through actively engaging in OFDI, establishing operations in both advanced and emerging economies; 2) the period also coincides with the availability of our search results where the first qualifying article (Makino, Lau & Yeh, 2002) we identified within our journal scope was published just after the turn of the century.

Table 1. Journal List

No. of journals	Academic field	Journal title	AJG ranking[2]	Impact factor[3]	Year of first publication[4]
1.	International Business	Journal of International Business Studies (JIBS)	4*	7.724	1970
2.	International Business	(Columbia) Journal of World Business ((C)JWB)	4	5.789	1965
3.	International Business	Journal of International Management (JIM)	3	2.830	1995
4.	International Business	Management International Review (MIR)	3	2.689	1960

2 Based on latest Academic Journal Guide (also known as ABS guide) 2018, published by Chartered Association of Business Schools, UK.

3 Based on latest Journal Citation Reports published by Clarivate Analytics

4 Based on information from journal office sites.

5.	International Business	International Business Review (IBR)	3	3.639	1993
6.	International Business	Management and Organization Review (MOR)	3	1.655	2005
7.	International Business	Asia Pacific Journal of Management (APJM)	3	2.737	1984
8.	Innovation	Research Policy (RP)	4*	5.425	1971
9.	Innovation	Journal of Product Innovation Management (JoPIM)	4	4.305	1984
10.	Innovation	R and D Management (RDM)	3	2.354	1970
11.	Innovation	Technovation (TENO)	3	5.250	1981
12.	Strategy	Strategic Management Journal (SMJ)	4*	5.572	1980
13.	Strategy	Global Strategy Journal (GSJ)	3	2.730	2011
14.	General Management	Journal of Management (JoM)	4*	9.056	1975
15.	General Management	Administrative Science Quarterly (ASQ)	4*	7.313	1956
16.	General Management	Academy of Management Journal (AMJ)	4*	7.417	1958
17.	General Management	Academy of Management Review (AMR)	4*	8.855	1976
18.	General Management	Journal of Management Studies (JMS)	4	5.839	1963
19.	General Management	British Journal of Management (BJM)	4	2.750	1990
20.	General Management	Journal of Business Research (JBR)	3	4.028	1973
21.	General Management	Technological Forecasting and Social Change (TFSC)	3	3.815	1969
22.	Organization Studies	Organization Science (OSC)	4*	3.257	1990
23.	Organization Studies	Organization Studies (OS)	4	3.107	1980
24.	Operations and Technology Management	Journal of Operations Management (JoOM)	4*	7.776	1980
25.	Operations and Technology Management	International Journal of Operations and Production Management (IJoOPM)	4	2.955	1980
26.	Operations and Technology Management	Production and Operations Management (POM)	4	1.772	1992
27.	Economic Geography	Journal of Economic Geography (JEG)	4	3.359	2001
28.	Economic Geography	Regional Studies (RS)	3	3.147	1967

Search Strategy

To set a clear path and coverage, we follow Vrontis and Christofi's (2019) process of identifying a conceptual boundary and setting out inclusion and exclusion criteria. In line with Ramos-Rodríguez and Ruíz-Navarro (2004), Gaur and Kumar (2018), and Luo et al (2019), we proceeded in two stages. First, we identified keywords by looking at extant literature reviews. To determine which keywords are most relevant, we examined four review articles in innovation and knowledge management, namely Andersson et al (2016), Chatterjee and Sahasranamam (2018), Vrontis and Christofi (2019), Papanastassiou et al (2020), and a review article on emerging economies, Luo et al (2019). We then identified the following keywords: innovation, knowledge, R&D, technology, learning, emerging market multinational, emerging economy multinational, EMNE, EMNC. We added keywords that mirror EMNE knowledge management and innovation: patent, intellectual property, new product, product development, new process, disruptive, digital, platform, developing country multinational, and third world multinational. In line with Müller-Seitz (2012), adding a set of keywords broadens the search scope and minimizes the risk of excluding a search term that could yield relevant studies.

This allowed us to identify two categories: 1) 'emerging economy multinational', 'emerging market multinational', 'developing country multinational', and 'third world multinational'; and 2) 'innovation', 'knowledge', 'R&D', 'learning', 'technology', 'patent', 'intellectual property', 'new product', 'product development', 'new process', and 'OFDI'. We used the two groupings to guide the literature search via the three main business and management databases, Business Source Complete, Science Direct, and Web of Science. For each search, we used a combination of keywords from the two categories to ensure that each keyword was searched pairwise across the two categories together. Since this is a review of all empirical studies, we omitted book reviews, conceptual or review papers, editorials or introductions, and dissertation abstracts by selecting only original research articles, ensuring greater consistency in our findings. Last, we searched the target publications with those keywords. Following the commonly used search approach (Andersson et al., 2016), the terms are applied to title, abstract, and keywords of published articles. These steps based on the inclusion criteria yielded a sample of 153 articles.

For exclusion, we assessed article relevance by reviewing abstracts and full texts. We considered studies that examine: 1) EMNEs' knowledge management processes, and 2) innovation performance as outcomes of EMNEs' knowledge management. This ensured that we only included articles that explicitly addressed the objectives of our review and excluded those that are beyond the scope. Specifically, we excluded studies on knowledge management that did not explicitly concern EMNEs (e.g., studies that focused on AMNE knowledge spillovers in emerging economies or emerging market firm learning at home without engaging in any form of OFDI), studies that focused on EMNE market seeking abroad, or those that employed global and aggregate OFDI data to examine emerging economy OFDI at the macro level and did not focus on EMNEs knowledge management strategies and innovation outcomes. For further consistency, we also excluded studies that (despite initial keyword matches) did not provide clear evidence or argument of firms with cross-border operations, or used samples of a mix of indigenous firms, indigenous firms forming joint ventures with foreign firms, and internationalized firms. Consistent with the works of Pisani,

Kourula, Kolk and Meijer (2017), Luo et al. (2019) and Vrontis and Christof (2020), this exclusion criterion produced a sample of 90 articles.

Finally, to ensure completeness, we manually checked the reference lists of all selected articles (Endres & Weibler, 2017), yielding three more. Overall, we included a total of 93 articles in this review.

Review Methods

We combined bibliometric and qualitative content analyses. We first used the bibliometric method for a statistical analysis of publication patterns along spatial and temporal dimensions (Ramos-Rodriguez & Ruiz-Navarro, 2004; Luo et al., 2019). We applied a data extraction form (Bailey, Madden, Alfes, & Fletcher, 2017) to report features of selected articles, including outlets, epistemological approaches, samples, and findings (Appendix 1). Second, we conducted content analysis (Gaur & Kumar, 2017), identifying research themes and subthemes. Finally, we highlighted knowledge gaps and proposed future research avenues (Post, Sarala, Gatrell & Prescott, 2020). Applying these two methods consecutively allowed us to synthesize cumulative and collective insights to form a comprehensive view of this research area. Such an integrated review approach also allows for a clear articulation of key issues that are understudied yet critical to both the theory and practice of EMNE knowledge management.

CONTENT ANALYSIS

Major Themes in EMNE Knowledge Management

Drawing on the content analysis method discussed by Gaur and Kumar (2017), Luo et al. (2019) and the APO framework, we first identified key categorical themes and subthemes in each main category based on manually assessing topical keywords found in abstracts and keywords. We then manually reviewed and assessed the research questions and article topics in each theme to ensure relevance.

Three major areas concerning EMNE knowledge management were identified: 1) EMNE knowledge seeking strategy; 2) EMNE knowledge transfer process; and 3) EMNE innovation outcome. We show the distinctiveness of the three areas and delineate their linkages and boundaries. Theme

1 consists of studies scanning antecedents of EMNEs' internationalization. The research questions concern knowledge driven OFDI motivations and knowledge management strategies (n=39).

Table 2. Representative articles of EMNE knowledge management

	Author & year	Outlet	Conceptual lens	Methodological choice	Geographical context	Main argument or contribution
				Antecedent		
				OFDI as a knowledge management strategy		
Inward Internationalization as the Precondition of Knowledge-seeking OFDI	McDermott & Corredoira (2010)	JIBS	Capability upgrade; network theory	Questionnaire	Argentina	▪ Argentine firms can benefit from their linkages with AMNEs, which compensate for the lack of support from their local organizational and institutional environments.
	Kumar, Gaur & Pattnaik (2012)	MIR	Resource-based view, transaction cost economics, institution-based view	Panel data	India	▪ Indian business groups with prior international exposure and domestic learning are able to simultaneously pursue product diversification and international expansion
	Li, Li & Shapiro. (2012)	GSJ	Organizational learning; eclectic paradigm; catch-up	Panel data	China	▪ Host country's industry-specific technology advantage increases the propensity of EMNEs to invest in the country. EMNEs are more willing to invest abroad to seek knowledge when learning at home through inward FDI and knowledge spillovers becomes limited.
	Fleury, Fleury & Borini (2013)	JIM	Country-of-origin effect	Archival document	Brazil	▪ Brazilian MNEs conduct different types of innovation based on their unique capabilities/approaches that provide them international competitiveness. There is a dynamic relationship between institutions, innovation and the internationalization of Brazilian MNEs.
	Liu et al. (2016)	IBR	Organizational learning	Questionnaire	China	▪ Domestic learning through collaboration with foreign firms at home, and host market learning, positively contributes to subsidiary performance. There are synergetic effects between domestic learning and host market learning, and these two types of learning jointly shape subsidiary performance.
Knowledge-driven OFDI	Deng (2009)	JWB	Institutional view; strategic asset seeking	Interview; archival document; field observation	China	▪ Chinese firms' cross-border M&As are resource driven and represent a means of acquiring and sourcing strategic assets abroad.
	Kalotay & Sulstarova, (2010)	JIM	OLI	Panel data	Russia	▪ The extent to which theories of ownership and locational advantages are applicable to the Russian context. As for the motivation for FDI, Russian MNEs seem to aim to control upstream natural resources, while in high-income countries they aim to control downstream markets.
	Kedron & Bagchi-Sen (2012)	JEG	Ambidexterity; Eclectic paradigm	Archival document	India	▪ EMNEs which originated as generic manufacturers succeed in European markets by simultaneously pursuing multiple foreign operations motivated by knowledge augmenting and exploiting goals. EMNEs use a repetitious cycle of earning and learning to achieve market growth.

	Thite, Wilkinson, Budhwar & Mathews (2016)	IBR	Linkage-leverage-learning model; internationalization process	Interview	India	▪ The process through which EMNEs evolved to become credible global players by leveraging their learning through targeted acquisitions in emerging economies to acquire intangible assets and/or following global clients in search of new markets and competitive advantages.
	Chen & Liu (2019)	APJM	Linkage-leverage-learning model	Panel data	China	▪ It focuses on the motivation behind knowledge-seeking FDI and identifies equifinal configurations of linkage and leverage conditions leading to high learning propensity of EMNEs. It shows how Chinese investment in the European Union reveals the preconditions for foreign knowledge sourcing.
Where to seek and exploit knowledge	Rabbiosi, Elia & Bertoni (2012)	MIR	Organizational learning; internationalization process	Panel data	Brazil; Russia; India; China	▪ Drawing on an organisational learning perspective, it considers international experience and home-country characteristics core sources of EMNEs' learning, and shapes EMNEs' acquisition behaviour in advanced economies. There is a positive relationship between expanding into developed markets and EMNEs' knowledge acquisition.
	Awate, et al. (2015)	JIBS	Ambidexterity; catch-up	Patent data; interview	India	▪ There are some fundamental differences in EMNEs' and AMNEs' internationalization of R&D activities. AMNEs' R&D activities are driven by competence exploitation and competence creation, whereas EMNEs' R&D activities reflect their catch-up strategy and EMNEs' headquarters receive knowledge from R&D subsidiaries in advanced economies. There is a slow process of reverse knowledge transfer within EMNEs.
	Jindra, Hassan & Cantner (2016)	IBR	OLI; organizational learning	Panel data	China	▪ EMNE location choices are positively affected by agglomeration economies and knowledge externalities. In addition, there are differences in the valuation of various sub-national location factors as well as differences in the substitution pattern between alternative regions for EMNEs. EMNEs use outward foreign direct investment to augment ownership specific assets.
	Yoo & Reimann (2017)	JIM	Institution-based view; knowledge seeking	Panel data	85 emerging economies	▪ EMNEs prefer investing in other emerging economies with stronger knowledge-based assets and weaker IPR protection. These criteria attract even more FDI when both co-occur.
	James & Sawant (2019)	JBR	OLI; knowledge seeking	Panel data	Brazil; Chile Mexico	▪ Multilatinas that compete in high-technology industries are more likely to engage in acquisitions in advanced economies. It also finds a positive interactive effect on acquisitions in advanced economies between R&D intensity and competing in a high-tech industry.
				Process		
				Knowledge transfer processes		
Reverse knowledge transfer from advanced economies	Kotabe, Jiang & Murray (2011)	JWB	Social capital theory; organizational learning; knowledge-based view	Questionnaire	China	▪ The impact of knowledge acquisition on new product market performance is contingent on Chinese firms realised absorptive capacity and managerial capability of integrating and transforming the acquired knowledge.

	Nair, Demirbag & Mellahi (2015)	MIR	Reverse knowledge transfer	Questionnaire	India	▪ This study examines the effects of subsidiary-level competencies, close collaboration with the parent unit facilitates Indian MNEs' reverse knowledge transfer. Host countries competitiveness and knowledge complexity have a positive association with the extent of reverse knowledge transfer.
	Rui, Zhang & Shipman (2016b)	JWB	Knowledge transfer	Interview	China	▪ Developing a relevant knowledge recipient ownership mode, it refines the process of EMNEs' knowledge transfer in Africa. It demonstrates EMNEs' competitiveness in other emerging economies due to the distinct characteristics of their relevant knowledge and recipient-driven knowledge transfer.
	Liefner, Si and Schäfer (2019)	TENO	Catch up	Interview	China	▪ Huawei's collaborative R&D projects are aimed at fast and unidirectional technology absorption, involve a high degree of control and do not seek long-term personal interaction. The manifestation of these characteristics, however, changes over time.
	Liu & Meyer (2020)	JWB	Boundary spanning perspective	Interview	China	▪ Building on the boundary spanning perspective, it shows that the effectiveness of reverse knowledge transfer depends on both the ability and motivation of individual boundary spanners, as well as team-based international collaboration. Enabling and materializing serve as two mechanisms for reverse knowledge transfer.
Knowledge transfer to other emerging economies	Bandeira-de-Mello, Fleury, Aveline & Gama (2016)	JBR	Internationalization process; ambidexterity	Interview; archival document	Brazil	▪ The process of knowledge management is characterized by balancing exploration and exploitation in developed and developing countries simultaneously. The tensions between the two approaches to knowledge management can be significantly reduced through implementing separation of the organizational structures within the EMNE.
	Rui, Cuervo-Cazurra & Un (2016a)	JWB	capability upgrade; organizational learning; country-of-origin effect	Interview; archival document; field observation	China	▪ Based on an in-depth case study, it identified four processes underlying EMNEs' learning-by-doing: integration, trial and error, repetition, and extension, and captured unique distinctive features of EMNEs' learning-by-doing.
	Ado, Su & Wanjiru (2017)	JIM	Social capital; culture difference	Interview	China (& Africa)	▪ Joint ventures between Chinese MNEs and local African firms become an effective way of knowledge acquisition by African firms, implicitly showing that Chinese firms are able to exploit knowledge advantages in such a context.
	Botchie, Sarpong & Bi (2018)	TFSC	No specific theory	Archival document; interview	India (&USA)	▪ Technology transfer by Indian MNEs tends to be more appropriate than that from the US. Their study raises an important issue of appropriateness of technology transfer to developing countries and shows that EMNEs have advantages in transferring more suitable technology than AMNEs.
	Khan et al. (2018)	JWB	Institution-based view; ambidexterity	Interview	China (& Japan)	▪ The exploratory analysis shows that suppliers operating in adverse economic situations, such as Pakistan, can develop international networks with both AMNEs and EMNEs to counterbalance the negative impact of home institutional factors by engaging in exploratory innovation.
International migrants as a knowledge transfer channel	Lu, Liu, Filatotchev & Wright (2014)	IBR	Organizational learning	Panel data	China	▪ Highly skilled migrants' cultural background and language skills help subsidiaries of EMNEs to engage with local counterparts more effectively than those without such a background. These

						individuals act as knowledge brokers or boundary-spanners who help EMNEs effectively manage the tensions arising between acquired units and the headquarters of EMNEs.
	Cui, Li, Meyer & Li (2015)	MIR	Internationalization process	Panel data	China	▪ There is empirical evidence that returnee managers' international leadership experience positively affects EMNEs' OFDI. Such an impact is stronger for firms with central-state and private ownership.
	Fu, Hou, Sanfilippo (2017)	IBR	Internationalization process	Questionnaire	China	▪ The international experiences of highly skilled migrants, to some extent, help compensate for the lack of experiential knowledge, and overcome the liability of emergingness. International migrants can serve as a 'short-cut' to enable EMNEs to quickly acquire necessary capabilities and knowledge through internationalization.
	Kabongo & Okpara (2019)	JBR	Internationalization process	Archival document	Africa	▪ Highly skilled migrants help overcome cognitive barriers to knowledge transfer and enhance the effectiveness of knowledge acquisition.
				Outcome		
				Innovation as outcome of knowledge management		
The effects of knowledge-seeking OFDI on innovation	Kotabe & Kothari (2016)	JWB	Evolution theory; organizational learning; capability upgrade	Archival document	China; India	▪ EMNCs' evolutionary paths to building competitive advantage from their home market to developed countries is based on the ability to both acquire resources and absorb them, and to find new market niches and enhance their innovation capabilities to overcome the liability of emergingness.
	Amendolagine, Giuliani, Martinelli & Rabellotti (2018)	JEG	No specific theory	Panel data	China; India	▪ EMNEs experience improved innovation performance from investing in subnational regions with higher innovative capacities and not from innovative target firms.
	Piperopoulos, Wu & Wang (2018)	RP	Organizational learning	Panel data	China	▪ OFDI has a positive effect on the innovation performance of EMNE subsidiaries and that this effect is stronger when the OFDI is directed towards developed rather than emerging countries.
	Thakur-Wernz, Cantwell & Samant (2019)	IBR	Eclectic paradigm; organizational learning	Patent data	India	▪ Greenfield ventures foster innovation in core technologies, while cross-border M&As foster innovation in non-core technologies. Locating subsidiaries in high income countries encourages product innovation, while locating in low-income countries encourages process innovation.
	Wu & Park (2019)	GSJ	Institution-based view	Panel data	China	▪ International institutional complexity has an inverted U-shaped impact (first increasing and then decreasing) on EMNE innovation, and a moderate level generates the most innovation output. TMT host exposure and TMT heterogeneity positively moderate this relationship.
The effects of knowledge management mechanisms on innovation	Awate, et al. (2012)	GSJ	Organizational learning; ambidexterity	Patent data; interview	Indian (& Demark)	▪ AMNE's knowledge base is deeper and composed of more distinct technology groups than that of the EMNE. The EMNE has caught up in terms of output capabilities, but still lags in terms of innovation capabilities.

Bello, Radulovich, Javalgi, Scherer & Taylor (2016)	JWB	Services theory	Panel data	India	▪ Expert human capital is a critical source of capabilities, enabling EMNEs to develop innovative services profitably.
He, Khan & Shenkar (2018)	JWB	Capability upgrade	Interview; archival document	China	▪ Complementary assets, lead positions in the global value chain, and the unique power relationship between the EMNE and its acquired firms enable co-learning and technological upgrading.
Thakur-Wernz & Samant (2019)	GSJ	Organizational learning	Patent data	India	▪ The effect of learning through overseas subsidiaries on innovation performance is positive, albeit those that have higher rates of knowledge acquisition and smaller knowledge distance with host countries achieve the highest increase in patents.
Karabag (2019)	JBR	Institution-based view	Interview	Turkey	▪ Failure factors include ownership, innovation strategy, and technology capability development, as well as home institutional conditions.

Theme 2 consists of studies examining the processes of EMNE knowledge management. The research questions explore the role of different factors and actors in internal and external knowledge transfer. This theme is the least studied (n=20). Theme 3 consists of studies concerning innovation as the outcome of knowledge management. The research questions focus on explaining the innovation performance of EMNEs through their various knowledge management strategies and organizational characteristics (n=34). Overall, the three themes are categorized as antecedents, processes, and outcomes, thus providing a holistic view of EMNE knowledge management. Table 2 outlines representative studies.

We first review and synthesize studies concerning each theme and subthemes in detail and then evaluate the articles within each theme along the dimensions of theories, methods, geographical contexts, and empirical findings. Finally, we discuss key observations associated with knowledge frontier issues in each of the themes.

Theme 1: EMNEs' OFDI as a Knowledge Management Strategy

This theme focuses on analysing the existing literature on EMNEs' OFDI as a means of knowledge management. We identify three distinct yet related subthemes. The first concerns the context of the home country and the integrated world economy in which EMNEs manage knowledge flows. The second concerns knowledge strategies as the main motive for EMNEs' OFDI. The third focuses on OFDI location choices. Of the three subthemes, the knowledge-seeking motive has drawn considerable scholarly attention and resulted in a large number of studies compared with the first and third subthemes. We will review and synthesize these three areas of literature in line with three key guiding questions: 1) What are the factors affecting EMNEs' knowledge seeking OFDI? 2) How do EMNEs determine their location choices? 3) What are the knowledge frontier issues?

Inward Internationalization as the Precondition of Knowledge-seeking OFDI

Scholars have paid rising attention to how EMNEs' home-country context and the more integrated world economy have shaped EMNEs' knowledge-seeking activities through OFDI (Li et al., 2012; Luo & Wang, 2012; Mihailova, 2015; Liu et al., 2016; Hertenstein, Sutherland & Anderson, 2017; Li, Yi, &

Cui, 2017). Before EMNEs made a noticeable stride, their home countries, such as Brazil, Russia, India, China, and South-Africa (BRICS), received substantial inward FDI. This created an environment in which those firms either faced direct competition from AMNEs operating in their home country or engaged in the global value chain by becoming suppliers or distributors for AMNEs (Luo & Wang, 2012; Liu et al., 2016; Li et al., 2017). They may also have encountered international competition via exports and imports (Lu et al., 2011; Wei, Zheng, Liu & Lu, 2014). AMNEs' entry in emerging economies served as a training ground enabling them to learn from AMNEs at home (Li et al., 2012; Luo & Wang, 2012; Mihailova, 2015; Liu et al., 2016; Li et al., 2017). This inward internationalization has built learning capabilities and provided knowledge needed for internationalization (Cui et al., 2014; Liu, et al., 2016; Fu et al., 2017; Li et al., 2017). There is a close link between inward and outward internationalization. This precondition constitutes a unique characteristic of EMNEs' knowledge management due to contextual factors, such as the more globalized world economy and home-country conditions.

Research shows that inward FDI provides learning opportunities for EMNEs and serves as an alternative source of advanced technological knowledge (McDermott & Corredoira, 2010; Li et al. 2012; Fleury et al., 2013; Liu et al. 2016). For example, McDermott and Corredoira (2010) explore the impact of different types of network relationships of Argentine firms with AMNEs on the process and product upgrading in the auto-parts sector, showing the local firms benefiting from linkages with AMNEs that compensate for the lack of support from their local organizational and institutional environments. Kumar et al. (2012) show that Indian business groups with prior international exposure and domestic learning simultaneously pursue product diversification and global expansion. Li et al. (2012) and Hertenstein et al. (2017) find evidence of the positive impact of inward FDI on the technological upgrading of EMNEs. Liu et al. (2016) show that domestic learning via collaboration with foreign firms at home enhances Chinese MNEs' competitiveness in host markets. Thus, inward internationalization fosters learning capability and serves as a stepping-stone for knowledge seeking OFDI. Though extant literature highlights that EMNEs do not possess classic firm-specific ownership

advantages, as identified for AMNEs, exposure to a more integrated global economy and the domestic learning associated with inward internationalization represents a unique opportunity for EMNEs. The linkage between inward and outward internationalization constitutes a precondition under which EMNEs can adopt their knowledge seeking and catch-up strategies in outward internationalization. Such a unique and dynamic linkage represents one of the most distinct differences between EMNEs and AMNEs and forms the foundation of knowledge-seeking OFDI by EMNEs.

Knowledge-driven OFDI

EMNEs have been recognized as the driving force in the increase of FDI flows globally (UNCTAD, 2005; 2017). To be globally competitive and address the lack of firm-specific advantages, EMNEs have been 'shopping' aggressively for new knowledge through OFDI. It has become their primary channel to access international know-how and move up the global value chain. Accordingly, there is a strong interest from IB, innovation, and economic geography scholars to investigate the motivation of EMNEs (Makino et al., 2002; Lu et al., 2011; Cui et al., 2014; Anderson, 2015; Jindra et al., 2016; Elia & Santangelo, 2017; Wang, Xie, Li & Liu, 2018; Xie & Li, 2018).

Knowledge-seeking EMNEs: Within this steam, a growing number of studies argue that EMNEs use OFDI to acquire globally recognized brands, advanced technology and management expertise by expanding into developed markets via aggressive strategic-asset-seeking OFDI (Mathews, 2006; Rui & Yip, 2008; Deng, 2009; Lu et al., 2011; Cui et al., 2014). Knowledge seeking has been recognised as the most vital and prevalent motive driving EMNEs' OFDI (Rui & Yip, 2008; Lu et al., 2011; Li et al., 2012; Deng; 2009; Cui et al., 2014; Thite et al., 2016). Research consistently shows that EMNEs' internationalization serves as a means of knowledge exploration, contrasting with that of AMNEs who aim to exploit ownership advantages abroad. As latecomers in the global marketplace, EMNEs' ability to overcome the inherent disadvantages associated with latecomer status depends on their effectiveness in obtaining knowledge outside their home country through OFDI.

Existing studies have pinpointed two main reasons for this strategic motive. First, competitive catch-up and technological upgrading lie behind the knowledge-sourcing motive. Research

shows that OFDI by EMNEs is motivated to speed up their technological development and enhance their competitive position (Deng, 2009; Cui et al., 2014; Thite et al., 2016; Chen, Li & Fan, 2019). International strategic resources, such as technology resources, are most beneficial for EMNEs' catch-up (Buckley et al., 2016). Second, knowledge-seeking OFDI by EMNEs is seen as a means to transfer capabilities, expertise and technologies back to the domestic market. The acquired assets can be used to compete against AMNEs domestically or exploit the home market (Rui & Yip, 2008; Deng, 2009; Lu et al., 2011). As AMNEs protect themselves from knowledge leakage by not introducing their most advanced products and technologies to emerging markets, EMNEs have to seek those assets in foreign markets. Hence, developing a stronger domestic market position has been recognised as a key driver of knowledge-seeking behaviour by EMNEs allowing them to integrate and exploit acquired strategic assets at home (Awate, Larsen & Mudambi, 2012; Anderson et al., 2015; Rui et al., 2016a). Through OFDI, EMNEs overcome the limitations of their home institutional environment and innovation ecosystem and enhance their knowledge base for innovation (Lu et al. 2011).

Beyond the knowledge-seeking motive: While knowledge seeking is a dominant EMNE investment motive, other motives, such as knowledge exploitation, are also found. A number of studies reveal that EMNEs pursue an ambidextrous strategy using knowledge exploration and exploitation simultaneously when conducting OFDI (Hsu, Lien, & Chen, 2013; Choi, Cui, Li & Tian, 2020). Chittoor and Ray (2007) find that Indian MNEs pursue both exploitation and exploration via new product development and new market expansion. Similarly, Kedron and Bagchi-Sen (2012) show that Indian pharmaceutical MNEs simultaneously pursue knowledge exploitation via generic sales, and knowledge augmentation through the acquisition of product pipelined technology. Relatedly, Kothari, Kotabe, and Murphy's (2013) and Kotabe and Kothari's (2016) historical analysis of Chinese and Indian MNEs shows that EMNEs exhibit both asset-seeking and opportunity-seeking motives.

Extant literature has also shown that EMNEs exploit their existing knowledge as a unique advantage when expanding to other emerging markets (Rui et al., 2016b; Ado et al., 2017; Kabongo

& Okpara, 2019). Market size and host country natural resources are key drivers of Russian OFDI in contrast to the asset-seeking motive of Chinese and Indian OFDI (Kalotay & Sulstarova, 2010). This difference, likely rooted in national specialization and comparative advantage, highlights the need to broaden the range of emerging markets studied while avoiding an assumption of commonality in their international strategy and knowledge-seeking behaviour.

Where to seek and exploit knowledge

EMNEs need to make strategic decisions about where to seek and exploit knowledge via choosing appropriate locals. Spatial variation of knowledge advantages impacts EMNEs' location decisions to achieve knowledge-seeking strategy. There is a growing consensus that EMNEs' investment in advanced countries is primarily driven by their knowledge-sourcing motive (Luo & Tung, 2007; Lu et al., 2011; Li et al., 2012; Cui et al., 2014; Lyles, Li, & Yan, 2014). In addition to benefit from developed markets, EMNEs exploit their unique knowledge advantage by expanding into emerging economies.

Knowledge seeking in advanced economies: Advanced economies are the preferred locations for EMNEs with knowledge-seeking motives. Studies found that EMNEs often expand into advanced economies seeking superior technology, managerial know-how, and other knowledge assets unavailable at home (Madhok & Keyhani, 2012; Awate et al., 2015; Cui et al., 2017); such expansion enables them to reduce the costs and duration of organic knowledge creation. EMNEs also make their location decisions in line with the presence of agglomeration economies and knowledge externalities (Poon, Hsu & Jeongwook, 2006; Jindra et al., 2016).

The literature pinpoints several factors affecting EMNEs' location choices (Kedron & Bagchi-Sen, 2012; Jindra et al., 2016). First, engaging in localized learning in advanced economies drives EMNEs' location decisions. Fan, Cui, Li and Zhu (2016) examine factors affecting EMNE localized learning and find that locational conditions in advanced countries motivate EMNEs to engage in learning. Fleury and Fleury (2014) study why Brazilian EMNEs acquire firms in advanced economies and show that reverse takeovers are part of their dynamic reconfiguration and learning process of global production systems. Liu et al. (2016) find that local learning in advanced host economies

enables EMNEs to achieve their knowledge objective and enhance competitiveness. Similarly, Chen, Li and Fan (2019) demonstrate that advanced economies serve as 'learning laboratories' for EMNE subsidiaries which benefit from localized learning through developing networks with various external stakeholders, including suppliers, competitors and customers in host countries. Thus, exposure to multiple advanced economies provides EMNEs with diverse sources of knowledge and learning opportunities.

Second, industry-specific technological advantages attract EMNEs to undertake OFDI in advanced economies. Li et al. (2012) find that Chinese manufacturing MNEs tend to invest in an advanced economy that has industry-specific technological advantages relative to China. Similarly, Rabbiosi et al. (2012) find that EMNEs' technology-seeking OFDI depends on industry-specific technological advantage. By expanding to advanced economies with industry-specific technological advantage, EMNEs benefit from knowledge spillovers and access valuable R&D resources and skilled labour.

Third, the institutional environments of advanced host nations affect EMNE destinations. EMNE research generally considers the level of institutional development and the different types of institutional environments affecting where EMNEs invest. Cui et al. (2017) study links between EMNEs' OFDI and the comparative institutional advantages associated with different types of institutional environments and show that variation in comparative institutional advantages in advanced economies attracts different types of EMNEs. Yoo and Reimann (2017) find evidence that EMNEs prefer investing in advanced economies with either stronger knowledge-based assets or weaker IPR protection (ideally both). However, the influence of weaker host country IPR protection on the location decision diminishes for firms originating from home countries with higher stocks of knowledge-based assets. In contrast, Papageorgiadis, Xu and Alexiou (2019) show that well-established IP institutions attract OFDI from China into 23 European countries and encourage innovation activities in the host country. However, they also find evidence that Chinese firms were attracted to weaker IP institutions in the Former Eastern Bloc due to institutional similarities between the home

and host countries. The mixed findings may be due to heterogeneity in IP protection and the legal systems of advanced economies.

EMNEs in both advanced and emerging economies: While there is a growing consensus that knowledge-seeking motives drive EMNEs to invest in advanced countries, a small number of studies examine EMNEs expanding into both advanced and other emerging economies (Makino et al., 2002; James & Sawant, 2019; Kabongo & Okpara, 2019). Makino et al. (2002) find that Taiwanese MNEs make different investment decisions in advanced versus emerging economies. Taiwanese MNEs invest in emerging economies to reduce labour costs, while investment in advanced economies is motivated by the lack of specific technological expertise that is necessary to compete in those markets. Similarly, Kabongo & Okpara (2019) show that African firms use the 'observe, explore, and exploit' approach to expand into both advanced and emerging economies. Based on EMNEs from Brazil, Chile and Mexico, James & Sawant (2019) find that higher labour intensity drove southern acquisitions, whereas EMNEs with high R&D intensity that compete in high-tech industries are more likely to engage in northern acquisitions in advanced economies. This shows that both firm and industry specific characteristics affect Latin American MNEs' knowledge seeking and exploitation acquisitions in both advanced and emerging economies.

Building on the early literature on third-world MNEs which focused on the rationale of expanding into host countries with the same level of economic and institutional development (Lall, 1983; Wells 1998), recent studies examined the extent to which EMNEs pursue their knowledge advantage in other emerging economies (Buckley et al., 2007), in particular, as it applies to Chinese and Indian EMNEs (Rui et al., 2016b; Ado et al., 2017; Sun, Peng, Ren, & Yan, 2012; Wang, et al., 2018; Khan et al., 2018). Those studies collectively show that EMNEs can effectively operate in emerging markets by reconfiguring ordinary resources into relevant advantages to fit the local conditions of host nations. While EMNEs investing in those economies can benefit from global economies of scale and an increase in market share, their OFDI is not geared to source new knowledge; rather, they adapt their existing technologies and products to local market needs (Chittoor, Aulakh & Ray, 2015; Wang et al., 2018).

Key observations and knowledge frontier issues

Several key observations are made in relation to the literature in this theme. First, in terms of theories, scholars have mainly used the springboard perspective and the linkage-leverage-learning (LLL) approach, as well as extended Dunning's electric paradigm, to explain knowledge-seeking OFDI by EMNEs. The springboard view proposes that EMNEs systematically and recursively use international expansion to acquire strategic resources globally and avoid institutional and/or market constraints at home (Luo & Tung, 2018). Departing from traditional theories based on AMNEs, this approach provides conceptual underpinning for knowledge-seeking OFDI by EMNEs. Similarly, the LLL approach based on the resource-based view and organizational learning theory is a popular lens to explain EMNEs engaging in OFDI to develop competitive advantages through linkage, leverage and learning from external relationships (Mathews, 2006). Research adopting this approach views global expansion of EMNEs as a process of resource leverage and continual learning that reflects latecomers' strategic priority in global competition. In addition to the two approaches that are developed based on EMNEs' internationalization reality, some studies extended Dunning's electric paradigm to take account of EMNEs' characteristics. Developing ownership advantage or firm-specific advantage does not necessarily originate in MNEs' home country, but rather can be acquired and augmented abroad (Buckley & Hashai, 2009). Thus, strategic assets-seeking FDI by EMNEs can be explained by extending Dunning's paradigm. Whilst these three theoretical lenses are useful for explaining the motivation of EMNEs' global expansion, reflecting the underpinning assumptions that the knowledge-seeking FDI tends to bring about benefits and advantages to the EMNEs, they do not offer sufficient theoretical clarity regarding whether and how EMNEs' strategies to seek knowledge may bring about disadvantages or cause unintended consequences to EMNEs, and possible ways in which they can respond appropriately to these challenges.

In terms of methodological trend, we find that most of the articles in this theme applied a single method and tended to take a quantitative approach using secondary data sources. There is a noticeable lack of studies employing a qualitative, primary data-based approach. Only two studies

(i.e. Poon, et al., 2006; Mihailova, 2015) applied a mixed-method approach. There are two interrelated issues here: a single, quantitative method and a single level of analysis. Quantitative analysis is informative but, in our view, merely relying on such an analysis may obscure rich insights behind the statistical results. This is particularly true in this research area whereby statistical analysis may obscure the complexity of knowledge management. Regarding empirical contexts, only a small number of studies indicate that EMNEs exploit their knowledge advantage by investing in other emerging economies. Such studies have largely focused on Chinese and Indian MNEs operating in other emerging economies, typical examples of South-South knowledge flows. There has been only limited research on how EMNEs from other emerging economies, such as Brazil, Russia, and South Africa, manage knowledge flows in such a context. Thus, we have only a limited understanding of the relationship between the heterogeneity of EMNEs and knowledge flows between EMNEs and local firms in other emerging economies.

Last, we observe that studies in this theme represent limited interdisciplinarity. Most are from only three disciplines, namely IB, general management and economic geography. Whilst the studies from IB and economic geography tend to focus on the importance of location characteristics as the 'place' dimension is particularly fundamental to these fields, studies from general management have paid more attention to the technological considerations as determinants of EMNE knowledge-seeking activities. However, it is surprising that there is a lack of research from other allied disciplines, including innovation and operations and technology management. Although MNEs in general (i.e. both AMNEs and EMNEs) are acknowledged as key contributors to innovation and technological advancement at local, national, and international levels, by working closely or in partnership with individuals, research institutions, universities, governments, and start-ups, there is scarce research from these two fields investigating these connectivities and opportunities as antecedents of EMNE knowledge-seeking abroad.

Theme 2: The Process of Knowledge Transfer of EMNEs

The process of knowledge management of EMNEs has become a focus of academic attention in recent years. This literature stream has mainly examined EMNEs' integration of acquired knowledge from advanced economies and can be categorized into three subthemes. First, reverse knowledge transfer from EMNEs' subsidiaries to headquarters, a crucial issue affecting the extent to which EMNEs can achieve knowledge seeking objectives. The second subtheme focuses on knowledge transfer to other emerging economies, where subsidiaries are used as conduits to exploit EMNEs' knowledge advantages abroad, differing from those with knowledge-seeking motives in advanced economies. The third subtheme considers international migrants as a new channel of knowledge management in order to capture the impact of increasingly international mobile workers on the process of EMNE knowledge management. Accordingly, we review and synthesize these three areas of literature in line with three key guiding questions: 1) What are the key knowledge transfer processes in EMNEs? 2) How do EMNEs manage reverse knowledge transfer? 3) What are the knowledge frontier issues?

Reverse knowledge transfer from advanced to emerging economies

Corresponding to expanding into advanced economies, EMNEs need to consider how to effectively manage reverse knowledge transfer from subsidiaries to headquarters. Reverse knowledge transfer is not exclusive to EMNEs as AMNEs also tap into external knowledge through their subsidiaries. However, what is distinct in EMNEs' reverse knowledge transfer is that as latecomers, EMNE headquarters tend to lack strong firm-specific advantages and are thus less likely to serve as a source of advanced knowledge for subsidiaries. The headquarters may suffer from knowledge backwardness or lack of knowledge superiority and require more time and effort to engage in the process of reverse knowledge transfer, in addition to granting subsidiaries more autonomy. This thus reflects an asymmetrical relationship between EMNE headquarters and subsidiaries that differs from AMNEs. Research in this area examined the impact of the unbalanced relationship between headquarters and subsidiaries or over reliance on subsidiaries in advanced economies, on reverse knowledge transfer and has found that within EMNEs, the process of reverse knowledge transfer is longer,

more challenging, and complex than that of AMNEs (Awate et al., 2015; Nair et al., 2015; Zheng, Wei, Zhang & Yang, 2016). It is evident that EMNEs lack well-established processes for effectively managing knowledge-seeking activities and are slow to learn from their foreign subsidiaries. While EMNEs can take a shortcut to access advanced knowledge by acquiring target firms in advanced economies, they have to bear the slow process of knowledge transfer or knowledge integration in the post-acquisition period.

In addition, the literature examined key success factors in reverse knowledge transfer in the post-acquisition stage (Fu, Sun & Ghauri, 2018; Hensmans & Liu, 2018; Ai & Tan, 2019; Liu & Meyer, 2020). Headquarters' status, reverse capability transfer, and a favourable organizational atmosphere have been identified as key to knowledge management post acquisition. Some have found that close collaboration between subsidiaries and parent firms facilitates knowledge transfer from subsidiaries to the parent, especially in knowledge intensive sectors (Nair et al., 2015; Fu et al., 2018). While knowledge complexity tends to hinder AMNEs' knowledge flow, EMNE studies suggest that knowledge complexity does not negatively affect reverse knowledge transfer. The findings may reflect basic differences in investment motives and learning capabilities of AMNEs and EMNEs (Rui et al., 2016b; Nair, Demirbag, Mellahi, & Pillai, 2018). The importance of reverse knowledge transfer in catchup strategies of EMNEs, and their learning agility or absorptive capacity, enables coping with knowledge complexity (Kotabe et al., 2011; Buckley & Hashai, 2014). Relatedly, EMNE managers must be equipped with skill sets and experience to manage cross-border operations, as well as combinative capabilities, to enable assimilation and integration of acquired knowledge (Cui, et al., 2015; Fu et al., 2018).

A growing body of research examine the external conditions under which EMNEs are able to achieve knowledge-seeking objectives via reverse knowledge transfer (Li, Li, Lyles, & Liu; 2016; Ai & Tan, 2019; Liu & Meyer, 2020). The findings show that technological gap and knowledge distance have a negative impact on reverse knowledge transfer. Factors such as subsidiaries' understanding of the local environment help facilitate reverse knowledge transfer from subsidiaries to EMNEs' headquarters (Kotabe et al., 2011; Buckley, Elia, Kafouros, 2014). Bernat and Karabag (2019)

explore organisational activities performed by Brazilian MNEs at advanced stages of catching up. Petrobras and WEG systematically monitored their environments to look for windows of opportunity and consistently invested in learning mechanisms to overcome shortcomings in knowledge upgrading. Aligning the environment with technological development is key for optimising the technology upgrading process. Liefner, et al. (2019) show that close collaboration with local firms and universities or research institutes in advanced economies also facilitates access to external knowledge which enables EMNEs' subsidiaries to contribute to the technology upgrading of their headquarters.

Knowledge transfer to other emerging countries

The literature has also examined how EMNEs affect other emerging economy firms through knowledge transfer (Rui et al., 2016a; Ado et al., 2017; Khan et al., 2018). This stream has identified relevant knowledge and recipient ownership as crucial components in managing knowledge flows in such a context. Possessing suitable knowledge and recipient-driven transfer constitute unique characteristics of knowledge management of EMNEs. Specifically, Ado et al. (2017) find that joint ventures between Chinese MNEs and local African firms become an effective way of knowledge acquisition by African firms. Similarly, Khan et al. (2018) have found that Chinese motorcycle assemblers help local suppliers to develop exploratory innovations in Pakistan. Botchiea et al. (2018) examine technology transfer from Indian and US MNEs to local firms in Uganda. Their findings show that technology transfer by Indian MNEs tends to be more appropriate than that by US MNEs, thus raising an important issue of appropriateness of technology transferred to other emerging economies and indicating that EMNEs have advantages in transferring more suitable technology than AMNEs.

These studies demonstrate that EMNEs adopt different knowledge management strategies when operating in host countries with different levels of economic and knowledge development. EMNEs have competitive advantages over AMNEs when operating in the underdeveloped institutional environments, such as Africa. The relatively narrow technological gap between EMNEs' home

countries and other emerging economies enables those firms to better exploit their knowledge advantage via a transfer of relevant knowledge to local firms.

A few studies have shown that EMNEs use both asset-exploration and exploitation approaches to deal with the process of knowledge management in both advanced and emerging economies. Bandeira-de-Mello et al. (2016) study the acquisition process of new knowledge and the interaction between new knowledge and current knowledge in a Brazilian IT company. The process of knowledge management is characterized by balancing exploration and exploitation in advanced and emerging economies simultaneously. The tension between the two approaches to knowledge management can be significantly reduced by implementing separation of the organizational structures within the EMNE.

International migrants as a channel of knowledge transfer of EMNEs

EMNEs studies incorporated international migration[5] into the domain of international knowledge flows in order to capture the unique characteristics of EMNEs' learning and knowledge acquisition (Lu et al., 2014; Cui et al., 2015; Fu et al., 2017). This line of inquiry explored how multicultural individuals affect MNE knowledge flows. Some studies examine whether, and how, highly skilled migrants, such as returnees, enhance knowledge learning and transfer within EMNEs (Lu et al., 2014; Cui et al., 2015). It is noted that the extent of international knowledge flow depends not only on EMNEs' organizational structure, but also on the international experience and cultural background of managers and employees. Prior experience, and the cultural and knowledge advantages embedded in highly skilled migrants can enhance EMNEs' learning capabilities when operating abroad. They act as a channel for acquiring international experiential knowledge and can accelerate firms' learning processes (Cui et al., 2015). International migrants can serve as a 'short-cut' to enable

[5] While a few studies examined the role of expatriate managers in EMNE knowledge management and shown that those with closer relationships with local managers play a vital role in facilitating reverse knowledge transfer (Kong, Ciabuschi and Martín, 2018; Williams & Lee, 2016), they did not capture the cultural backgrounds of expatriate managers, limiting our understanding of how expatriate managers develop trust and close networks with local managers in host units. To ensure consistency, our review focuses only on international migrants as a channel for EMNE knowledge transfer by taking account of an increasing trend in international migration and unpack the role of expatriate managers with a multicultural background in EMNE knowledge management.

EMNEs to quickly upgrade necessary capabilities and acquire knowledge through internationalization (Fu et al., 2017). Highly skilled migrants help overcome cognitive barriers to knowledge transfer and enhance the effectiveness of knowledge acquisition (Kabongo & Okpara, 2019); their cultural background and language skills help EMNE subsidiaries engage with local counterparts. These individuals act as knowledge brokers or boundary-spanners who help EMNEs manage tension between acquired units and headquarters due to their embeddedness in multiple social networks (Fu et al., 2017; Liu & Meyer, 2020). The process of knowledge transfer and integration is best devised when EMNEs capitalize on international migrants with multicultural backgrounds and linguistic skills, such as global diaspora and returnee migrants.

Key observations and knowledge frontier issues

We make several major observations based on our review of this theme. First, the organizational learning theory is adopted as the main theoretical framework to examine reverse knowledge transfer, though most studies did not explicitly present the theoretical frameworks. This approach has been broadened by taking account of the characteristics of headquarters and subsidiaries, which affect knowledge transfer in addition to internal absorptive capacity. The appropriateness of knowledge transferred to other emerging countries has also been examined within such a framework. Our review shows that studies of reverse knowledge transfer within EMNEs tend to draw on the existing literature on reverse knowledge flows of AMNEs. However, this is insufficient to capture the unique features of EMNEs. For example, EMNEs' subsidiaries in developed economies tend to be relatively advanced as a result of strategic asset-seeking FDI. This brings about challenges facing EMNEs in achieving effective reverse knowledge transfer. However, there has been sparse use of the notion of reverse knowledge management to examine the processes involved in headquarters' management of target firms or acquired sub-units in advanced economies, the organizational mechanisms and systems that are developed to facilitate reverse knowledge transfer. Thus, we have a limited understanding of the factors affecting the pace of reverse knowledge transfer, and the link between types of acquired knowledge and the process of reverse knowledge transfer. In addition, existing

research has seldom touched upon how EMNEs learn from local firms in host countries and interact with AMNEs and other EMNEs. We know little about how local embeddedness and legitimacy of EMNEs affect the intensity and effectiveness of their knowledge accessing/sourcing.

Second, we find that most of the articles applied a qualitative approach using both interview data (as the main source) and archival documents (as the supplementary source). There is a noticeable lack of studies employing a quantitative approach or a mixed method. While qualitative analysis is considered more suitable than quantitative analysis in uncovering 'hidden' contextual elements that underlie the knowledge transfer process, an over reliance on interview data as the main source of qualitative analysis has major limitations. For example, given that knowledge is tacit and constantly evolving, and the transfer process is continuous and deeply embedded in specific contexts, ad hoc and often singular pre-designed interviews can be less effective in capturing the complexity of knowledge and its transfer. Instead, a combination of methods consisting of, for example, interviews, archives, longer-term or regular observations or data collection (e.g., individual storytelling, social network analysis or focus groups) in a given organization setting is more likely to unravel actors, subprocesses or conditions that influence the process. Regarding levels of analysis, little research has been conducted at an individual level, despite the recognition of individuals as key players in knowledge management. Few studies have examined the process of reverse knowledge transfer at an individual level by explicitly investigating the relationship between the heterogeneity of individuals and knowledge transfer. Thus, there is a missing link between the process of knowledge transfer and the characteristics of individuals (e.g., person-specific attributes including gender, education, work and life experiences, and aspirations). For example, the role of international migrants in knowledge transfer of EMNEs is only examined by a handful of studies and thus it is unclear how international migrants with a multicultural background differ from other more conventional boundary spanners who do not have such a background.

Last, we observe that studies in this theme are predominantly from only three disciplines, namely IB, general management and strategy. Whilst the studies from IB and strategy tend to stress the importance of knowledge transfer at the firm level, those from general management pay more

attention to individuals as a mechanism of knowledge transfer. However, one commonality is that these studies tend to focus on examining the effects of different factors on knowledge transfer. Moreover, the fact that scant research is found in other allied disciplines, such as innovation and operations and technology management warrant a call for a more interdisciplinary perspective. For example, innovation and technology management research tends to treat the 'process' aspect of knowledge management as a fundamental area of study and focuses much more on the underlying elements of the 'process' itself rather than identification of factors affecting the process. Yet, there is an omission in these fields to unpack the distinct knowledge transfer process in the context of EMNEs. At the same time, there is an absence of IB scholars to look further to allied disciplines for a more complete understanding of the mechanisms of EMNE knowledge transfer from interdisciplinary perspectives.

Theme 3: EMNE Innovation as the Outcome of Knowledge Management

EMNE knowledge management is crucial to their innovation performance and overall global competitiveness. We identify two foci in the literature. The first looks at the effects of knowledge-seeking OFDI on innovation; the second concerns the effects of knowledge management mechanisms, such as inter-firm relational dynamics, on innovation. The two foci form two distinct yet related subthemes of EMNE innovation. Of the two, the first subtheme has drawn greater scholarly attention, resulting in a larger number of studies. Correspondently, we will review and synthesize these two areas of literature in line with three guiding questions: 1) How does EMNEs' knowledge-seeking OFDI affect their innovation outcome? 2) How do EMNE knowledge management mechanisms affect their innovation outcome? 3) What are the knowledge frontier issues in research on EMNE innovation outcomes?

The effects of knowledge-seeking OFDI on innovation

Studies in the first subtheme focused on OFDI location factors and the speed of internationalization as determinants of innovation outcome. They predominately posited a positive effect of OFDI on

EMNEs' innovation performance measured by patent counts and citations, new product development, technological and product capability upgrade, and process innovation. Two research areas are identified: first, and more dominant, is OFDI location characteristics, the other area is the speed of internationalization.

The performance of EMNEs' innovation is impacted by a range of OFDI location features. One literature stream offers that the degree of international diversification across advanced and emerging economies affects innovation performance (Jiang, Branzei & Xia, 2016; Amendolagine et al., 2018; Piperopoulos et al., 2018; Thakur-Wernz et al., 2019; Wu & Park, 2019). For example, Piperopoulos et al. (2018), Wu and Park (2019), and Thakur-Wernz, et al. (2019) find that OFDI of Chinese and Indian MNEs shows positive effects on subsidiary innovation performance (e.g. patent citations, new products) when OFDI is geared towards advanced rather than emerging economies. However, there is also interdependence between innovation in advanced and emerging economies, in that the former brings more new products or patents whilst the latter encourages more process-based innovation. In contrast to the studies noting the positive effect of OFDI in advanced economies, a few studies have found the picture to be more complex. Amendolagine et al. (2018) compare the post-acquisition innovation performance of Chinese and Indian MNEs in the medium to high technology sector in Europe and US and observe that the EMNEs are unable to benefit from innovative target firms. The authors argue that OFDI brings positive effects to innovation only for EMNEs with a strong knowledge base and high status, regardless of how innovative the target firm is, or where it locates.

Another literature stream goes beyond international diversification measures and explores the possible effects of individual advanced host economy conditions on innovation performance (Wu, Wang, Hong, Piperopoulos & Zhuo, 2016; Juasrikul, Sahaym, Yim & Liu, 2018; Wu, Ma & Liu, 2019a). Studies have taken an institution-based view to propose that institutional development in advanced host economies enhances, on average, EMNE innovation performance. Specifically, Wu (2016), Juasrikul et al. (2018) and Wu et al., (2019a) find an overall increase in the number of patents

filed by EMNEs from the BRICS countries. However, these studies have noted four different conditions. First, such effects are more pronounced for those EMNEs diversifying into a larger number of countries. Second, a moderate level of institutional complexity generates the most patents compared with high complexity. Third, the top management team's host-country exposure and its heterogeneity have a positive moderating effect. Fourth, the level of cultural distance between home and host countries can have a negative effect.

In contrast to the first research area, the second research area that examines the effect of internationalization speed on EMNE innovation performance attracted less interest (Bonaglia, Goldstein & Mathews, 2007; Kotabe & Kothari, 2016; Tian, 2017). The overall conclusion is that EMNEs tend to adopt an accelerated internationalization approach, which contrasts with the traditional view of the gradual internationalization model. However, the effects of such rapid internationalization on EMNE innovation are inconclusive. For example, the case study of three EMNEs in the white-goods industry from China, Mexico and Turkey finds that the pursuit of accelerated internationalization enables rapid learning and catch up of their technological innovation capability. Thus, what is different in the internationalization patterns of MNEs from North America, Europe, and Japan, is that the three did not delay internationalization until they were large at home but rather grew large as they internationalized. This distinctive OFDI approach involves extensive acquisitions to gain new technological assets to expand and diversify the competence base (Bonaglia et al., 2007). Other studies emphasized the importance of time in EMNEs' learning and development of their advantages via the internationalization process. Jiang et al. (2016), Kotabe and Kothari (2016) and Ray, Ray & Kumar (2017) find in the case of Chinese and Indian MNEs that a gradual process has a positive impact on several aspects of innovation performance, including new product development, enhanced design competency and improved product quality. This is because EMNEs must go along an evolutionary path towards building competitive advantage from their home market to advanced economies over time, an evolution based on their ability to acquire and absorb resources to build their own advantage and to enhance their innovation performance to overcome the liability of emergingness (Kotabe & Kothari, 2016). Whilst linkage and learning during the early stages of

EMNE internationalization contributes to the development of innovative capability, it is internal autonomous learning capability in an EMNE that contributes to technological upgrade and market performance (Jiang et al., 2016; Ray et al., 2017).

The effects of knowledge management mechanisms on innovation

The literature in this second subtheme has focused on the knowledge management mechanisms of EMNEs as determinants of innovation performance. The factors range from managing international linkages, subsidiary conditions, power relationships, international experience, entrepreneurship orientation and ownership differences, and technological management. Generally, studies in this subtheme have predominantly noted the positive effects of managerial factors on EMNE innovation performance. Two research areas are identifiable: home and host country knowledge linkages and internal knowledge management. Although the levels of scholarly interest for both areas have been somewhat similar, research on the second area suggests more mixed results than that in the first area.

Specifically, studies on the home and host country knowledge linkages have found positive effects. The studies by He et al. (2018), Khan et al. (2018) and Thakur-Wernz and Samant (2019) demonstrate that international linkages are important sources of innovation through case studies of Pakistani, Indian, and Chinese MNEs. Those studies collectively indicate that given the home institutional weaknesses, EMNEs seek to mitigate home conditions and seek greater innovation performance by more effectively managing their international networks through the global value chain. The better managed linkages, or relationships, can lead to better learning and knowledge transfer from overseas partners or subsidiaries, which subsequently have a positive effect on EMNE innovation performance. A case study of a Chinese MNE's acquisition in the UK shows three sets of factors are important determinants of effective learning, namely the lead position of the acquirer in the global value chain, complementary assets and the power relationship between the acquirer and acquired (He et al., 2018). Similarly, Awate et al. (2015) found that in seeking improved innovation

performance, Danish and Indian MNEs use fundamentally different learning and knowledge management processes: whilst Danish headquarters serve as the primary source of knowledge for overseas subsidiaries, Indian headquarters access knowledge from R&D subsidiaries in advanced economies through reverse knowledge transfer. Such reverse knowledge transfer is associated with better innovation outcomes. The Indian MNEs have caught up in terms of innovation capabilities for improved production, but still lag in radical innovation (Awate et al., 2012). This is one of the few studies to compare EMNEs and AMNEs, conferring higher confidence when arguing for the unique features of EMNEs.

In contrast to the research examining international knowledge linkages, studies that pay special attention to knowledge linkages at home are few. Ray and Ray's (2011) applies a disruptive technological angle to examine this topic and finds that EMNEs who closely collaborate with domestic suppliers during the early phase of component design can better achieve low-cost new products that are valued by the mass markets. Rather than looking outward for sources of innovation, their study reveals how EMNEs' innovation performance is enhanced through its domestic knowledge networks.

Apart from knowledge linkages, several internal firm factors can impact on EMNE innovation performance. However, results from this stream are somewhat inconclusive. On the one hand, the presence of strong internal organizational learning, flexible routines, entrepreneurial orientation, expert human capital and cross-functional technological learning (at the individual or team level) are found to have positive effects on product innovation (e.g., project success, development speed and product entry timeliness) and patent generation (Li & Kozhikode, 2008; Ignatius, Leen, Ramayah, Hin & Jantan, 2012; Wu 2013; Bello et al., 2016; Rui et al., 2017). On the other hand, ownership type does not guarantee a positive effect on innovation performance (Singh & Gaur, 2013; Karabag, 2019). This can be caused by a lack of investment interest in innovation by institutional owners and inappropriate technological management of business group owners to ensure necessary autonomy in product development.

Key observations and knowledge frontier issues

Several observations can be made regarding the literature in this theme. First, the institution-based view, LLL model and organizational learning are the most popular theoretical perspectives. This implies the conceptual focus on EMNEs as latecomers driven by seeking capability development opportunities from diverse institutional conditions overseas via processes of linking, leveraging, and learning from firms in advanced economies. These theories provide a useful basis to explain the effect of knowledge management on EMNE innovation outcome, where such a positive effect is generally evident. However, these theories have not provided sufficient explanation about the effect of EMNEs' ability to 'cherry-pick' the right countries in terms of market and technological sophistication on their innovation performance.

Second, studies in this area have predominantly taken a quantitative approach by overly replying on panel data, whereas a smaller proportion has used questionnaire survey data. Although the extensive use of secondary panel and patent data may well be suited to the research foci of the studies in this theme, one might also argue that it could also be an issue of convenience. Only two studies have used both quantitative and qualitative data and methods (i.e. Awate et al., 2012; Awate et al., 2015). In reality, innovation performance (success or failure) may be the result of a much wider range of interconnected factors and therefore, the use of a single source of data risks a missed opportunity to offer a more complete explanation. While determinants of negative innovation performance are equally important as those of positive innovation performance, if not more important, the lack of studies on the former may be caused by the inevitable methodological challenges associated with studying firm failures, given that these are considered by firms as extremely sensitive historical events. It is also noticeable that most studies in this theme have focused on firm level innovation performance rather than more micro-level outcomes, e.g. subsidiaries, R&D projects or individual performance, with a few exceptions as noted in the review. Further, innovation performance indicators are diverse across the two subthemes. Apart from patent counts as the commonly used measure, there seems to be no established set of measures. The use of patent counts as the single indicator of innovation performance may be narrow and restrictive for understanding and theorizing innovation performance and its determinants. Most studies in this theme

focused on two nations, India, and China, with only two studies on Pakistan, Turkey, Russia, South Africa, Brazil, Indonesia, Philippines, and Malaysia. The imbalance in empirical contexts and the inherently distinct home markets of these emerging economies make it difficult to draw generalized conclusions. The case of Turkey, for example, shows that limited market liberalization can deter EMNEs from greater technological capability upgrades, whereas prominent institutional weaknesses in Pakistan can deter firms from achieving more critical innovation. In contrast, the more liberalized conditions of China and India suggest a more ideal environment in which EMNEs from these countries are in a better position for rapid learning and capability upgrade.

Last, research in this theme shows the highest interdisciplinarity, spanning six disciplines: IB, innovation, general management, strategy, economic geography, and technology management. The high interdisciplinarity in this theme, compared to the first two, suggests strong shared research interest in understanding EMNE innovation performance. For example, studies in IB, strategy, and economic geography revealed key managerial or locational factors in contributing to EMNE innovation outcomes, whilst those from innovation, operations and technology management, and general management paid close attention to technological processes and factors as predictors of EMNE innovation performance. These diverse perspectives have thus provided rich insights into whether and how EMNE knowledge management leads to innovation. Conversely, this diversity also raises an issue: IB, strategy, and economic geography studies have remained within their 'conceptual silos' by focusing on managerial and locational factors. In contrast, those from innovation, general management, and operations and technology management have focused on technological dimensions as the main explanators for innovation. The absence of connection between these two sets of disciplines suggests that our knowledge about reasons behind EMNE innovation outcomes remains narrow in scope and depth.

IMPLICATIONS FOR FUTURE RESEARCH

The Key observations and Knowledge Frontier Issues section for each theme has provided a critical evaluation of the articles reviewed along three dimensions, namely theory, methodology, and interdisciplinarity. Building on these evaluations, in this section we provide deepened discussions on the most pressing research areas relating to each theme and across themes, and offer detailed and instrumental suggestions for future research to extend existing knowledge, along the three dimensions.

Table 3. Additional Future Research Avenues

Key aspects	Direction for future research	Examples of unanswered/under-research questions	Suggested actions
		Theme 1: OFDI as a knowledge management strategy	
Interdisciplinary insights	▪ Examine shortcomings of EMNEs' knowledge-seeking strategies.	o How do nation-states interactions impact on EMNEs' decisions and locations for knowledge-seeking OFDI? o To what extent do geopolitical tensions force EMNEs to conduct more organic knowledge development and how does such a shift affect the mechanisms and processes of knowledge-seeking? o How do the (absence of) characteristics of EMNE dynamic capabilities impact on antecedents of EMNE knowledge management?	– Apply a more interdisciplinary approach to provide alternative explanations such as an international political economy approach that takes account of geopolitical conditions between nation states as an important factor affecting EMNE knowledge management or the dynamic capabilities view that considers EMNEs to lack dynamic capabilities that impact on their ability to manage knowledge.
Extended spatial dimension	▪ Move beyond the traditional assumption of the spatial dimension in EMNE research which remains predominantly at the country level as the unit of analysis.	o How does the noticeable within-country variation in emerging economies affect investment locational choices of EMNEs? o Whether and how subnational variations in economic development, innovation capacity and knowledge productivity impact on EMNE knowledge management? o What role do regional innovation systems play in EMNEs' FDI location decisions?	– A more micro perspective accounting for 'both international and subnational spatial heterogeneity' to examine subnational spatial heterogeneity across host emerging and advanced economies for deeper understanding of EMNE OFDI location choices.
Integrated methodological approaches and multilevel analysis	▪ Seek a more balanced methodological approach that employs different methods and different levels of analysis	o What are the new mechanisms of EMNE knowledge-seeking OFDI? o What is the network of dimensions that form the antecedents of EMNE knowledge seeking abroad? o What are the actors and objects at different levels of these complex networks and locations that better explain the 'what' and 'how' of the antecedents of EMNE knowledge management?	– Go beyond the exclusive focus of statistical findings and apply a mixed and multilevel approach (e.g. e.g. quantitative and qualitative at micro, firm, and macro levels) for more elaborated explanations based on the context.
		Theme 2: Knowledge transfer processes	
Extended existing theoretical perspective	▪ More research on the interplay between EMNEs' knowledge exploration and exploitation across advanced and emerging economies.	o What are the distinct characteristics of global knowledge network systems that are pertinent to EMNEs? o To what extent do EMNEs explore new knowledge through subsidiaries in advanced economies given the often-large technological gaps between home and host advanced economies?	– Extension of the conceptualization of the knowledge exploration and exploitation dichotomy to EMNEs to unravel learning process through both knowledge exploration and exploitation across different locations, types of knowledge and (reverse) transfer processes.

		○ Whether and how do EMNEs exploit their knowledge advantages in other emerging economies given the relatively smaller (in comparison to advanced economies) technological gaps between home and host emerging economies?	
Alternative and integrated theoretical lenses	▪ Move between the dichotomous view of exploration and exploitation in explaining EMNE knowledge transfer processes	○ How is new knowledge identified and transferred across the entire EMNE? ○ How to identify those subsidiaries that engage or have the potential to conduct explorative and exploitative activities simultaneously that signals the location and processes of the distinct capabilities being developed? ○ What is the relationship between EMNEs' global reach, the knowledge-seeking strategy, and the process of learning and upgrading?	– Apply the concept of organizational ambidexterity as a theoretical extension to the dichotomous view of knowledge exploration and exploitation to better explain the processes in which EMNEs simultaneously execute explorative and exploitative activities.
Longitudinal studies	▪ Move beyond treating knowledge transfer as a static and unidirectional process but a continuous, multifaceted, and multidirectional process.	○ How are the simultaneous knowledge exploitation and exploration processes taking place within EMNEs? ○ What are the factors (e.g. EMNE status) and actors (e.g. powerful acquired subsidiaries) that contribute to the often long, slow and complex processes of (reverse) knowledge transfer? ○ How is skilled labour mobility between different emerging economies influence the knowledge transfer process and the speed of such transfer?	– Use longitudinal case-study approach to observe the factors that affect single or simultaneous knowledge transfer processes, directions, and speed
		Theme 3: Innovation as outcome of knowledge management	
Alternative explanations	▪ More research to offer a consistent definition and measures of knowledge management outcome that is pertinent to EMNEs by moving beyond reliance on the established conceptualization of innovation success and failure of AMNEs.	○ To what extent can imitation be considered a success or failure in the case of EMNEs? ○ How can the possession of different types of R&D resources by EMNEs may impact on their willingness and ability to imitate AMNEs? ○ Whether and how imitation as a mechanism of knowledge management can lead to radical or incremental innovation?	– Draw on the imitation perspective to offer an alternative analytical lens to the understanding and theorization of EMNE knowledge management and innovation outcomes by treating imitation as a necessary factor – pertinent to EMNEs - of superior innovation performance.
Integrated theoretical perspective	▪ Scrutinize the assumption that EMNEs are fully capable of effective reverse knowledge transfer and assimilation for innovation.	○ Whether and how EMNE's internal R&D resources (e.g. technicians, knowledge management systems) may be the source to identify, absorb and transform external knowledge into technical efforts for imitation and innovation?	– Integrate imitation and absorptive capacity perspectives to examine in great depth the exact imitation and absorptive processes inside EMNEs for enhancing their incremental and radical innovation performance.

		○ Whether and how can EMNEs transform from being imitators and incremental innovators to radical innovators? ○ Whether and how can EMNEs assimilate the knowledge learned through reverse knowledge transfer by transforming it into value for imitation and innovation?	
broader methodological approaches	▪ More research expanding innovation performance measures, empirical contexts, and levels of analysis	○ Which methods are useful for unearthing multiple interconnected factors (e.g., knowledge and organizational actors, systems, and conditions) to predict innovation success or failure that is pertinent to EMNEs? ○ To what extent are multiple measures of innovation outcomes (e.g. a combination of quantitative and qualitative measures) useful for assessing the different effects on innovation? ○ Which are the measures that take careful account of the industry or sector heterogeneities in which different types of innovation take place?	– A combination of quantitative and qualitative measures that allow for multilevel (e.g. individuals, teams, projects, units) analysis and cross-industry (e.g. services, manufacturing) comparisons.

Cross-theme: EMNE knowledge management

Extended theoretical perspective	▪ More research on the underlying organizational factors of EMNE knowledge management.	○ What are the organizational factors (e.g. ownership, leadership and culture) that encourage or hinder effective knowledge management? ○ How do headquarters and subsidiaries across diverse locations learn to develop capabilities and realize technological upgrading? ○ Whether and how do EMNEs' learning of knowledge, processes, and routines lead to better knowledge management?	– Apply the organization unlearning perspective to provide an alternative or complementary explanation (to organizational learning) of the way EMNEs develop dynamic capabilities for knowledge management. – Apply the organizational unlearning perspective to examine underlying mechanisms that explain EMNEs' knowledge management across advanced and emerging economies – Apply the organizational unlearning perspective to identify possible processes in which imitation may be learned for the purpose of technological catch up and unlearned for the purpose of developing technological superiority.
The digital economy	▪ Examine potential effects of digital economy to disrupt EMNE knowledge management behaviour	○ Does the conventional view that EMNEs lack a technological advantage still apply to digital EMNEs? ○ Does the notion of the liability of emergingness apply to EMNEs with digital technological advantages?	– Apply the organisational unlearning and (re)learning perspectives to understand the potential radical unlearning and relearning processes in facing the disruptive technologies. – Apply a comparative analysis to examine EMNEs and AMNEs in terms of their unlearning and (re)learning in the digital economy.

		○ Does digital technology help broaden the sources of knowledge and facilitate knowledge flows by going beyond existing contacts and reducing barriers associated with technological and geographical distance?	– Apply a comparative approach to examine different types of EMNEs (e.g. brick-and-mortar vs. born digital) in terms of their unlearning and (re)learning in the digital economy.
Geographic context	▪ Address the contextual bias as a result of underrepresentation of other emerging economies beyond China, India, Brazil, and Russia (BRIC), which lead to theoretical implications	○ Whether and how can broader geographic context encapsulate the diversity across emerging economies and across EMNEs? ○ Whether and how can distinct characteristics of individual emerging economies influence and are influenced by EMNE knowledge management? ○ To what extent are EMNEs from non-BRIC nations differ from those from the BRIC in terms of knowledge management at home and abroad?	– Apply comparative analysis to different groups of emerging economies that are conceptually categorized based on a range of economic and social measures (e.g. Latin American, Africa). – Apply comparative analysis across individual emerging economies. – Apply comparative analysis to home (emerging economy) and host (emerging or advanced economies) countries to provide new macro and firm level factors that explain the differences.

We first focus on specific key issues in each main theme by proposing corresponding research avenues along several dimensions, including alternative or extended theoretical perspectives for expanding theoretical explanations, and alternative or underexplored methodological approaches (e.g., methods, levels of analysis and empirical contexts) to address existing methodological biases. Second, we propose three major overarching research avenues cutting across the three themes that highlight the ways of moving the field forward. Table 3 provides an overview of key research avenues in respect of each theme and across themes.

EMNE Knowledge-Seeking OFDI: Geopolitical and Dynamic Capabilities Perspectives

Existing literature has overlooked the shortcomings of EMNEs' knowledge-seeking strategies. The recent escalated interstate tensions and the technological war between the US and China have highlighted the vulnerability of EMNEs in responding to interstate political challenges. These challenges may have significant negative implications on EMNEs' ability to implement knowledge-seeking strategy and undertake knowledge activities in advanced economies. Existing literature has largely neglected the impact of geopolitical conflicts on EMNE knowledge management. Whilst past IB research has sparingly touched on the issue of interstate relations as one of the factors in the discussion of institutions, there is a lack of recognition of international political economy research which emphasizes the role of states in the international realm, and how this can inform and broaden IB research (Carmody & Owusu, 2007; Ufimtseva, 2020). We posit that, given the increasingly fragile world economy, it is important to recognize that the underlying assumptions behind EMNEs' knowledge-seeking strategy are changing rapidly. For example, to what extent the established assumption about EMNE catch up through knowledge-seeking FDI remains relevant in light of the Tech Cold War, which implies the importance of indigenous innovation capabilities of Chinese MNEs? The changing geopolitical context demands that IB scholars adopt a more interdisciplinary approach to studying EMNE knowledge management. Accordingly, we propose that the international political economy perspective should be incorporated into institutional theory to examine how interstate relations and ideological conflict between the home country and host countries affect EMNE

knowledge management. More specifically, IB scholars can use this lens to examine how nation states interact with each other and how their relations may impact on EMNEs' decisions and locations for knowledge-seeking OFDI, or how international relational factors, namely interstate political affinity, economic dependence and multilateral organizations explain EMNE knowledge management. In addition, key research questions await investigation to see whether geopolitical tensions force EMNEs to conduct more organic knowledge development, and how such a shift affects the mechanisms and processes of knowledge management. In doing so, future research will provide well-informed findings to capture the increasing complex political environment in which EMNEs operate.

Another theoretical perspective that may offer new insights into EMNE knowledge-seeking OFDI is the dynamic capabilities view which was first discussed in the field of strategy and used as an "approach to understanding strategic change" (Helfat & Peteraf, 2009: 92). Subsequently, it has evolved to explain firm heterogeneity and how firms can best respond to the dynamic operating environment (Luo, 2002; Riviere, Bass & Andersson, 2021). The dynamic capabilities view conceptualizes that firms can and should adapt a continuous process of simultaneous reactive and proactive reconfigurations of organizational capabilities and routines which is the basis to an ex-ante response to environmental shifts (Teece, 2014; Zollo & Winter, 2002; Riviere et al., 2021). Relatedly, IB scholars have drawn on the dynamic capabilities view to examine how AMNEs can leverage internationalization for dynamic capability development and firm success. We propose that this view can be extended to explain how the shortcoming associated with EMNEs' lateness and emergingness may impact on their knowledge driven OFDI and location choices. Contrary to AMNEs, EMNEs tend to possess less extensive international experience and thus their knowledge-seeking OFDI and decision can potentially be influenced by the lack of dynamic capabilities. This organizational limitation may significantly constrain EMNEs on accurately anticipating and responding to environmental changes across diverse locations. Furthermore, EMNEs may also face the challenge of being unable to formulate the most appropriate knowledge management strategies or effectively orchestrate diverse

knowledge resources across multiple locations as part of their knowledge-seeking OFDI. For example, EMNEs' decisions to undertake mergers and acquisitions in advanced economies, motivated by technological opportunities, can seem to be appropriate at the outset. However, the suitability of the target firms and the conditions of their home countries may be very dynamic and challenging for EMNEs to complete the deal or to gain from the acquired technologies when in fact they lack appropriate organizational and technological capabilities to make the best-informed merger and acquisitions decisions or to successfully respond to idiosyncratic host country conditions. Thus, the dynamic capabilities view can be an alternative explanation to EMNEs' knowledge-seeking strategy and extending our understanding of this phenomenon. In particular, the view can help to unearth the characteristics of EMNE dynamic capabilities and how these capabilities or the absence of these capabilities may impact on antecedents of EMNE knowledge management by unpacking organizational processes, structures, and actors that contribute or hinder EMNEs' dynamic capability development for knowledge management.

In terms of methodology, future research needs to overcome biases by using a broad set of methods, levels of analysis, and geographic context. We posit that a trend towards a more balanced methodological approach employing different methods (e.g., using multiple qualitative methods) and different levels of analysis (e.g., emphasis on within-country and micro levels), and considering diverse geographic contexts (e.g., beyond China and to some extent India) is likely to uncover new mechanisms of EMNEs' knowledge-seeking OFDI. Given the tacit nature of knowledge and thus complex knowledge management, research methods that emphasize contexts can provide more elaborated explanations. In addition, multi-level analysis is much more likely to help identify actors and objects at different levels of these complex networks and locations, offering more empirical and theoretical clarity to the 'what' and 'how' of the antecedents of EMNE knowledge management. Ideally, a blend of quantitative and qualitative methods for a multi-level analysis offers more detailed evidence-based explanations than a single method, single level approach studying EMNE knowledge management. Further, the traditional assumption of the spatial dimension in EMNE research remains predominantly at the country level as the unit of analysis. A more micro

perspective accounting for 'subnational spatial heterogeneity' is considered a more appropriate basis for FDI location research (Beugelsdijk & Mudambi, 2013: 413), albeit such a subnational variation (also known as 'subnationalism') is much discussed in the field of economic geography. For emerging economies, within-country variation is marked, and thus investment locational choices are likely to vary (Ma, Tong & Fitza, 2013). For advanced economies, the Brexit vote (i.e., UK's exit from the European Union) and US presidential elections in 2016 and 2020 also evidence the subnational division. What remains less clear in the literature is whether, and how, subnational variations across emerging and advanced economies in terms of economic development, innovation capacity and knowledge productivity impact on EMNE knowledge management. For example, research into subnational innovation systems remains nascent. Regional innovation systems play an important role in EMNEs' location decisions and more research efforts should be devoted to unpacking EMNE knowledge management in these contexts; doing so will enable theory development and better articulation of the linkage between the knowledge-seeking motive, knowledge availability and location choices.

EMNE Knowledge Transfer Process: From the Exploration and Exploitation Dichotomy to Organizational Ambidexterity

Past research relied heavily on organizational learning theory; however, using a single lens provides for narrow understanding. Future research could broaden organizational learning theory by considering bounded rationality and the cognitive barriers associated with EMNEs' learning and knowledge management. Future research could explore whether and how the process of EMNEs' knowledge management differs in locations and host country conditions, as well as from those of AMNEs. More specifically, whilst the literature shows that EMNEs engage in both knowledge exploration and exploitation by entering host countries with different levels of economic and technological development, there are few studies simultaneously considering EMNEs' knowledge exploration and exploitation in different locations. There is a lack of integrated research on EMNE knowledge management in both advanced and emerging economies. How EMNEs manage the tension between

global reach and knowledge transfer and integration across various locations with different levels of institutional and economic development remains unexplored. Contrary to this gap in the EMNE knowledge management literature, there is extensive research on AMNEs undertaking explorative and exploitative activities across heterogeneous locations (e.g. Almeida, 1996; Narula & Santangelo, 2012; Cano-Kollmann, Cantwell, Hannigan, Mudambi & Song, 2016). AMNEs preferred home and host advanced economies as the locations for knowledge exploration (Pearce, 1999). Knowledge exploitation, on the other hand, was predominantly conducted in emerging economies (Gereffi, Humphrey & Sturgeon, 2005). In between the exploration and exploitation were the continuous processes for codifying and systematising tacit knowledge to turn new and creative ideas developed in advanced economies into standardized and repetitive activities undertaken in emerging economies (Cano-Kollman et al., 2016). Thus, the common approach to knowledge management among AMNEs is relatively straightforward: knowledge explored in home and host advanced economies is exploited in host emerging economies. At the outset, this theoretical explanation seems to be somewhat useful in explaining EMNEs. Studies show that, like AMNEs, EMNEs consider advanced economies as an ideal location for knowledge exploration and subsidiaries are established to acquire new knowledge within the knowledge ecosystem of these host countries. New knowledge is then exploited in home or host emerging economies. However, what the existing theory cannot fully explain is some of the distinct characteristics of global knowledge network systems that are pertinent to EMNEs. For example, unlike AMNEs where subsidiaries explore new knowledge elsewhere to contribute to or complement existing organizational knowledge and competences, EMNEs 'deploy' knowledge exploration in advanced economies due to lack of home-based technological competences and are thus heavily dependent on subsidiaries in advanced economies for new technologies. Again, unlike AMNEs whereby knowledge from advanced economies is exploited in emerging economies, EMNEs not only exploit their knowledge in other emerging economies but also learn and accumulate knowledge by taking advantage of the relatively smaller technological gaps (compared to advanced economies) between home and host emerging economies. Thus, simply relying

on the conceptualization of the knowledge exploration and exploitation dichotomy based on AMNEs' experience may not fully capture EMNE knowledge management. We posit that it is vital to move away from the dichotomous view of exploration and exploitation in the study of EMNE knowledge management. EMNEs sit on the borderline between the two knowledge processes, i.e., learning via both exploration and exploitation and thus questions concerning different locations, types of knowledge, and (reverse) transfer processes, remain theoretically unexplained. In turn, this may contribute to refinement of the exploration-exploitation framework that is dominant in the management literature.

Relatedly, what may be useful as a theoretical extension to the dichotomous view to better explain EMNEs is the concept of organizational ambidexterity. The concept was first discussed in the management and strategy literature and describes the broad activities of exploration and exploitation (Duncan, 1976; Tushman & O'Reilly, 1996). Whilst earlier research treated the trade-offs between these two activities as "insurmountable" (Raisch, Birkinshaw, Probst & Tushman, 2009:685). Recent studies show that ambidextrous firms can indeed simultaneously execute explorative and exploitative activities resulting in superior performance as they experience a synergistic effect between the two activities (Gibson & Birkinshaw, 2004; He & Wong, 2004). Ambidexterity can occur at either the overall firm or the subunit level (Simsek, 2009; Raisch et al., 2009). At the firm level, exploration and exploitation take place separately across different subunits, namely 'differentiated ambidexterity'. Within subunits, the two activities take place together as 'integrated ambidexterity'. The use of this concept and its multilevel perspective can help address some of the questions pertinent to EMNEs. For example, the use of differentiated ambidexterity helps to map out where new knowledge is found and how it is transferred across the entire EMNE. Moreover, the use of integrated ambidexterity facilitates the identification of those subsidiaries that conduct or have the potential to conduct explorative and exploitative activities simultaneously. This not only signals the distinct capabilities being developed in these subsidiaries but these subsidiaries as an important 'sample' for further investigation in understanding the EMNE's knowledge exploration, exploitation,

and transfer processes. This extended perspective can allow for more systematic and in-depth investigations into the relationship between EMNEs' global reach, the knowledge-seeking strategy, and the process of learning and upgrading. Doing so will enhance our understanding of whether they pursue a balanced knowledge management approach or are inclined towards catch-up and capability upgrading at the expense of geographic reach.

In terms of methodological approach, there are research opportunities to move beyond treating knowledge transfer as a static, short and one-directional process. Knowledge transfer is a continuous, multifaceted, and multidirectional process in an organizational setting. Future research can employ a longitudinal case-study approach to observe the factors affecting single or simultaneous knowledge transfer processes, directions, and speed. For example, how are the simultaneous knowledge exploitation and exploration processes taking place within EMNEs? What are the factors (e.g., EMNE status) and actors (e.g., powerful acquired subsidiaries) that contribute to the often long, slow, and complex processes of (reverse) knowledge transfer? How does skilled labour mobility between different emerging economies influence the speed and process of knowledge transfer? How do EMNEs learn from local firms and research organizations in host countries through interfirm interactions, and connection with AMNEs and other EMNEs abroad?

EMNE Innovation Outcome: Imitation and Absorptive Capacity

Previous research has focused on examining EMNE innovation outcomes by relying predominantly on the established conceptualization of innovation success and failure of AMNEs. However, the technological gap and developmental lag between AMNEs and EMNEs may raise the question of the relevance and validity of these AMNE-centred definitions and measures used for research on EMNE innovation performance. Given that innovation success and failure entail highly complex processes that are often determined by specific contexts, we call for future research to offer a consistent definition that is pertinent to EMNEs. For example, to what extent imitation should or can be considered a success or failure in the case of EMNEs? If imitation is considered an innovation success, how should innovation failure be defined and determined in such a context? We posit that

the literatures on imitation versus innovation and absorptive capacity can be useful in extending our understanding and theorization of EMNE innovation. The imitation perspective argues that imitation can reduce risk and uncertainty in innovation, lower searching costs, and enhance innovation legitimacy (Harrigan & Di Guardo 2016; Wu, Harrigan, Ang & Wu, 2019b). Relating this to IB research, the common perception has been that AMNEs are first movers with strong technological leadership and superior innovation and EMNEs are latecomers playing the technological catch-up game. One of the ways in which EMNEs catch up is to imitate AMNEs' technologies. Hence, AMNEs are often considered to be capable of more radical innovations whilst EMNEs are predominantly imitators and incremental innovators (Lam, 2003; Shenkar, 2010). However, these differences in innovation performance are often assumed rather than studied. In recent strategy and technology management literature, focus has shifted towards the conceptualization of imitation as a knowledge management mechanism with diverse effect on different innovation types (Wu et al., 2019b). Imitation has a much stronger effect on incremental innovation than radical innovation, attributed to availability of firms' internal R&D resources and capabilities (Cohen & Levinthal 1990; Wu et al., 2019b) whereby strong R&D resources provide firms with incentive to engage in radical innovation than in incremental innovation or imitation. This conceptual lens in imitation research can help underpin new factors contributing to or hinder EMNE innovation performance. Drawing on this perspective, future studies can examine how the possession of different types of R&D resources (which can be highly diverse across EMNEs due to their distinct organizational and institutional environments) may impact on their willingness and ability to imitate AMNEs and whether and how imitation as a mechanism of knowledge management can lead to radical or incremental innovation. Instead of assuming that EMNEs are imitators and technology followers and thus tend to be less innovative (Shenkar, 2010), the imitation literature gives rise to the view that imitation is an important and unique mechanism of EMNE learning and technological catch up. Moreover, on the contrary to the negative view that imitation in the case of AMNEs reflects low-technological competences and unsustainable business, the imitation perspective offers an alternative analytical lens to the understanding and theorization of EMNE innovation outcomes by treating imitation as an

integral, necessary factor – pertinent to EMNEs - of innovation performance (e.g. incremental innovation in the short run and radical innovation in the long run).

Relatedly, firm absorptive capacity, which concerns the firm's ability to value, assimilate, and apply new knowledge for improving organizational learning (Cohen & Levinthal, 1990), can be a useful perspective offering further insights into EMNE innovation outcomes. Building on the imitation lens where R&D resources are important for imitation and innovation, the absorptive capacity perspective can help to further explain how the EMNE's internal R&D resources may be the source to identify, absorb, and transform external knowledge into technical efforts for imitation and innovation (Laursen & Salter 2006; Rosenkopf & Nerkar 2001). This continuous process of external learning and knowledge assimilation is thus likely to strengthen the EMNE's ability to catch up with AMNEs. Future research can examine EMNEs' absorptive capacity for imitation and innovation and trace the process in which EMNEs can potentially transform from being imitators and incremental innovators to radical innovators. Further, given that EMNE internationalization is often driven by the availability of new knowledge and technologies abroad which are absent in their home countries, the absorptive capacity approach suggests that specific attention should be paid to examining in great depth the exact learning and assimilation processes inside EMNEs for enhancing their innovation performance. The perspective challenges us to go beyond the existing assumption that EMNEs are fully capable of effective reverse knowledge transfer and assimilation, thus raising two related questions: Whether and how can EMNEs assimilate the knowledge learned through reverse knowledge transfer by transforming it into value for imitation and innovation? What are the underlying factors that explain successful and failed assimilation? Therefore, given the distinct nature of EMNEs, the imitation literature and absorptive capacity perspective can be integrated to offer alternative explanations for the way in which EMNEs manage the knowledge for achieving superior innovation performance.

Through the methodological lens, we posit that innovation performance measures, empirical contexts, and levels of analysis are three key areas for future research. Future studies can expand on the narrow range of innovation measures used. Rather than relying on statistical methods to

predict innovation success or failure (often as a matter of convenience), the complex and context-specific nature of innovation necessitates a greater conceptual appreciation of innovation success and failure in EMNEs which can be better supported by a more in-depth, inductive approach to unearth a series of interconnected factors (e.g., knowledge and organizational actors, systems, and conditions). It may also be necessary to consider multiple measures of innovation outcomes, such as a combination of quantitative and qualitative measures, to assess how factors affect various dimensions of innovation outcomes differently. Future research may also benefit from the deeper integration of technological strategies and processes as a useful set of determinants of innovation performance. Further, the measures used should also account for the industry or sector heterogeneities in which different types of innovation take place. For example, it may be useful to employ comparative research designs to assess innovation performance across manufacturing, services, and high technology sectors, which is likely to provide richer insights and enhance our understanding of how the sectorial context affects EMNE innovation. Relatedly, given that innovation takes place across multiple levels of the organization, the emphasis on the micro-foundations approach is likely to uncover lower-level processes and mechanisms contributing (or hindering) the capability upgrading and technological development of EMNEs through the exploration of individual knowledge workers, composition of R&D projects and teams, or sub-unit systems and practices.

Major Cross-Theme Research Avenues

1) Organizational unlearning: Taking a step further conceptually, we propose that the application of organization learning to EMNEs should take into consideration of an important and yet neglected process, i.e., organizational unlearning. The concept of organizational unlearning was first discussed in management research in the early 1980s (Hedberg, 1981) and is commonly defined as the process of discarding old ideas and routines to make way for new ones that contribute to better firm performance. Given that "organizational routines are repetitive patterns of interdependent actions carried out by multiple organizational members involved in performing organizational tasks"

(Tsang & Zahra, 2008:1437), organizational unlearning has been suggested to contribute to successful adaptation to environmental changes, promoting organizational learning, and enhancing firm performance (Starbuck & Nystrom, 1997; Tsang & Zahra, 2008; Nguyen, 2017). However, despite its importance, there has been scarce research applying this perspective – particularly to the EMNE context - and thus empirical evidence is limited (Tsang, 2008; Zhao, Lu & Wang, 2013; Surdu & Narula, 2020). This approach can be adopted to investigate new research questions useful for extending our understanding of EMNE knowledge management. For example, is organizational unlearning an important process of EMNE knowledge management? If so, given the established routines what are the processes of organizational unlearning that are pertinent to EMNEs (in headquarters and subsidiaries)? How is unlearning perceived in EMNEs? Is unlearning mostly intended or unintended in EMNEs? What are the organizational factors (e.g., ownership, leadership, and culture) that encourage or hinder effective unlearning? Whether and how does unlearning in headquarters and subsidiaries lead to effective (re)learning for capability development and technological upgrading?

Fundamentally, this perspective is likely to provide sound theoretical underpinning for some of the most important questions related to EMNE knowledge management: How do/can organizational unlearning processes affect the motives and decisions of EMNE knowledge-seeking OFDI, knowledge transfer processes, and innovation outcomes? For instance, knowledge about organizational unlearning processes in EMNEs may provide an alternative or complementary explanation to organizational learning of the way EMNEs develop new dynamic capabilities for knowledge-seeking OFDI. The unlearning perspective can also be useful in extending the theorization of EMNE knowledge transfer process. It may encourage future studies to investigate underlying mechanisms which can explain whether and how EMNEs unlearn 'old' knowledge and related routines and (re)learn new and more effective transfer practices for exploration and exploitation across advanced and emerging economies. Further, knowledge about EMNE unlearning processes can be useful in offering an alternative or complementary explanation to organizational factors that contribute or hinder innovation performance. Particularly, we argue that this perspective can help to identify

possible processes within EMNEs in which imitation may be learned for the purpose of technological catch up and unlearned for the purpose of developing technological superiority. It can help to examine whether and how EMNEs unlearn their 'old habits' in knowledge selection, codification and dissimilation which may have hindered their innovation and whether and how unlearning of these 'old habits' and (re)learning new habits can indeed lead to greater absorptive capacity for EMNEs. In summary, given the distinct nature of EMNEs, we propose that organizational unlearning is a valuable theoretical lens in the theorization of EMNE knowledge management (i.e., antecedents, processes, and outcomes), thus deserving more attention from IB scholars.

2) Unlearning and (re)learning in the digital economy. In addition to the suggested avenue above, we extend the unlearning perspectives to the context of disruptive digital innovation. The recent rise of the digital economy (Strange & Zucchella, 2017; Stallkamp & Schotter, 2019) will increasingly impact EMNEs. Despite the rapid advance of digital technology, there has been sparse research thus far to examine its potential to disrupt EMNE behavior. Thus, we highlight the usefulness of unlearning and (re)learning as the theoretical lenses for future research on digital technology.

EMNEs are increasingly becoming users of digital technology. For instance, Tencent and TikTok rely on digital technology not only as their platform but also for their competitive advantage. However, bricks-only companies, such as Haier, are now becoming both 'bricks and clicks', adding e-commerce and seeking ways to leverage their physical presence in a digital world. This raises a question as to whether there is a noticeable difference between born-digital EMNEs and bricks-and-mortar EMNEs in terms of their knowledge management. Drawing on the organizational re-learning and unlearning perspectives, do we expect the bricks-and-mortar EMNEs to be less effective in their knowledge management and innovation than the born-digital EMNEs, given that they may have to 'ditch' many old routines and (re)learn some new ones? Another important and yet underexplored area is whether the assumptions we make about EMNEs hold true in the context of digital technology. Does the conventional view that EMNEs lack a technological advantage still apply to digital EMNEs? Some EMNEs (exemplars are Chinese and Indian MNEs) have started to show mastery of digital technology while they are less encumbered by the sunk cost of earlier,

analogy technology. Does the notion of the liability of emergingness still apply to EMNEs with digital technological advantages? Indeed, we posit that the organisational unlearning and (re)learning perspectives may become more relevant, given that existing technological leadership may imply a radical unlearning and relearning process in the face of disruptive technologies. If EMNEs in this category are equally competitive, or even more advanced than traditional AMNEs, this may reduce the explanatory power of EMNEs based on a knowledge seeking and catch-up perspective.

Additionally, future research can explore how digitization affects the knowledge flows and innovation of EMNEs through the lens of organizational relearning. For example, does digital technology help broaden the sources of knowledge and facilitate knowledge flows by going beyond existing contacts and reducing barriers associated with technological and geographical distance? What are the mechanisms through which digital technology affects the process of EMNEs' knowledge transfer? Does digitization change the relationship between imitation and innovation in EMNEs? Given that digital technologies make it much easier to copy quickly, cheaply, and effectively (Shenkar, 2010), do EMNEs leverage imitation as a stepping-stone from which to develop innovative capabilities or conclude that it is not cost effective to invest in risky innovation at a time when imitation gets easier and when innovators can simply be acquired? Relatedly, will digital technology be learned and developed as a core advantage or a 'shortcut' to imitation? Given the disruptive nature of the digital technologies, EMNEs' learning of this emerging technology may be ahead of AMNEs in some areas because of their less-developed administrative heritage and limited baggage of old technology or few barriers to adopting new technology. For many AMNEs, there may be essential to unlearn extensively of certain 'old' technologies and knowledge management processes which had been developed and routinized for many years and relearn the digital way. Future research should consider organizational relearning and unlearning of EMNEs vs AMNEs in the context of the digital economy and examine the ways in which these two groups of firms manage knowledge and achieve innovation.

3) Contextual implications for theories: Looking across the three major themes, it is also worth highlighting a commonly shared feature, which is the underrepresentation of other emerging

economies beyond the BRIC. We herein clarify the theoretical implications of this contextual bias and discuss avenues for future research.

Whilst the increasing importance of BRIC and the rise of their OFDI makes this group a valuable context for studying EMNE knowledge management, we posit that the significant overrepresentation of the BRIC across the sample studies can have important theoretical implications. Given the idiosyncrasies across countries, underrepresentation of EMNEs from other emerging economies may lead to contextual biases that call into question the current theorization and empirical evidence of EMNE knowledge management. The biases include, for example, the tendency to consider the BRIC as the representative countries of a much larger number of emerging economies that are inherently very distinct in many major aspects of the society. Another potential bias is the tendency to assume commonality in BRIC which may obscure distinctiveness of each country. We thus contend that it is necessary to appreciate the distinct characteristics of individual emerging economies which influence and are influenced by EMNE knowledge management. For example, contrary to advanced economies which share many similarities in political, economic, social, and technological traits, emerging economies tend to vary much more given their inherently much more varied political, economic, social, and technological development paths and speed. Hence, EMNEs from different emerging economies are likely to have been 'grown' out of environments that represent highly diverse conditions, leading to different sets of firm experiences. Therefore, we posit that the conceptualization of knowledge management of MNEs from the BRIC may not have the equal level of relevance and significance for MNEs from other emerging economies. In fact, we remain less informed about MNEs from other emerging economies and the different factors which may be more relevant in explaining their knowledge management behavior and performance.

Although this contextual bias is apparent in the literature, we observe a slow but steady growth in research focusing beyond the BRIC – Central and Eastern Europe and Latin America. These regions may emerge as the next dominant research contexts. Given that OFDI from the regions is likely to increase and data accessibility is likely to improve, there is a scope for broadening the geographic context. This can provide better theorization of the phenomenon by encapsulating

the diversity across emerging economies and across EMNEs. Considering this development, we propose that more comparative analysis across different emerging economies and between home and host economies will offer more opportunities to extend existing theories. For example, a direct comparison between BRIC MNEs may reveal idiosyncratic environmental and organizational factors that underpin the differences in the antecedents, processes, and outcomes of their knowledge management. The comparison may also have theoretical implications when emerging economies are grouped into different conceptual categories based on a range of measures such as those in Central and Eastern Europe and Latin American undergoing socioeconomic transitions, those in Africa with similar cultural and socioeconomic backgrounds, or those smaller but growing economies in Asia. Comparisons within and across these regions are likely to shed new light on the topic, extending our knowledge beyond BRIC. Additionally, we also propose that comparative analysis should be applied to home and host countries to provide broader and richer theoretical explanations. For example, future research could potentially explore the extent to which EMNEs from different countries manage their knowledge activities in specific host countries differently. This may help to reveal new macro and firm-level factors that explain the differences. Similarly, future research could potentially examine the extent to which EMNEs from the same home countries manage their knowledge activities in the same host countries differently. This is likely to unravel new firm-level factors that lead to these differences.

Further, when examining EMNEs from different emerging economies, future research could also examine the impact of subnational variations on their knowledge management activities and outcomes. Economic geography literature often distinguishes between 'core' regions with high global and local connectivity (resource availability) and performance (economic, legal, and social development), and 'peripheral' regions which are, in comparison, lagging behind. Given that regional differences are considered important drivers of FDI (Goerzen et al., 2013), core regions are by far the largest recipients of innovation FDI (Castellani & Santangelo, 2016; fDi Markets, 2017). This further strengthens the capability of these regions and reinforces the core-periphery regional development gap (Asheim et al., 2011). Thus, less attractive peripheral regions are potentially deprived

of innovation capabilities and resources – otherwise developed through knowledge exchange with locally embedded innovative subsidiaries (Mudambi & Santangelo, 2016). Future research thus should pay more attention to examining this two-way effect for better understanding of the impact of subnational spatial heterogeneity on EMNEs and how EMNE knowledge management affects the subnational innovation systems and subsequent FDI in the region.

CONCLUSION

Our study makes three main contributions. First, it offers an overview of EMNE knowledge management by linking their internationalization to knowledge-seeking motives, transfer processes, and innovation outcomes, which provides a structured and integrative understanding of the way in which EMNEs deal with knowledge management issues and challenges in the face of a dynamic global environment. Second, it offers a targeted analysis of the research methodologies employed, highlighting the imbalance between quantitative and qualitative methods, and provide suggestions on alternative methods and data types. Third, we discuss three theme-based and three cross-theme research gaps and propose alternative theoretical approaches to move the field forward. To conclude, our study systematically reviews 93 articles published in 17 journals from 7 disciplines over the period 2000-2020 and provides in-depth evaluation of the existing literature in relation to theories, methods, and empirical contexts. It also identifies knowledge frontier issues and proposes actionable avenues for future research. We call for more research on this topic by reflecting the rapidly changing global economy and EMNEs' continuous effort to seek and develop their distinct competitive advantages.

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APPENDIX 1. BIBLIOMETRIC FINDINGS

In this section, we present bibliometric findings based on our analysis of the patterns and broad characteristics of the 93 articles. We provide discussion and offer insights of the overall research in the area of EMNE knowledge management across the period of 2000 and 2020. These findings are further elaborated in the content analysis section wherein we analyse and synthesize the literature in greater detail.

Distribution of Journals and Year

Table 4 shows the distribution of articles[6] published between 2000 and 2020 on knowledge management of EMNEs and illustrates a general growth of scholarly interest and an upward trend over

[6] The bibliometrics results excluded those journals in Table 1 which showed no relevant published articles. They were JoPIM, JoM, ASQ, AMJ, AMR, JMS, OSC, JoOM, POM, RS.

the last 10 years. It is worth highlighting that the current state of knowledge in this area is informed predominately by IB (59 articles), strategy (9 articles) and general management (11 articles). This may imply an IB discipline dominated view, unless IB research can be more informed by insights from other disciplines. Given the imbalance in articles published by IB and non-IB journals, we expect a publication bias and call upon IB scholars to make more extensive efforts to draw on other disciplines to better inform understanding of the topic[7].

Table 4. Distribution of articles published between 2000 and 2020

Year	APJM	BJM	GSJ	IBR	JBR	JEG	JIBS	JIM	JWB	MIR	MOR	OS	RDM	RP	SMJ	TENO	TFSC	Total
2000																		0
2001																		0
2002							1											1
2003																		0
2004																		0
2005																		0
2006						1												1
2007							1	4	1									6
2008	1																	1
2009									1									1
2010							1											1
2011									1	1	1					1		4
2012			3			1				2						1		7
2013				1	2			2										5
2014			1	2	1				2					1				7
2015		1		1			1		2	2						1		8
2016			2	5					7									14
2017	3			2				4				1			1			11
2018	1				2	1			2	1			2	1			1	11
2019	1		2	2	5					1						1	1	13
2020				1					1									2
Total	6	1	8	14	10	3	4	10	18	7	1	1	2	2	1	4	2	93

Theoretical Platforms

Table 5 presents all the identified theories or conceptual lenses used in this area, including articles without applying any specific theories that were labelled as 'no specific theory'. Whilst most studies applied theories explicitly, in some cases the theories used were not explicit and thus required our

[7] We elaborate on this point in the Implication for Future Research section.

own assessment, which we did by reviewing and identifying evidence from the conceptual background and discussion, a procedure suggested by Vrontis and Christofi (2019).

Table 5. Conceptual lenses used

Theory (in order of weight)	Count[8]	Percentage (%)
Organizational learning theory (incl. knowledge acquisition, reverse transfer, absorptive capacity, knowledge spillover effect)	49	26.5
Capability upgrade (incl. network capability, technological capability)	23	12.5
Resource-based view (incl. linkage-leverage-learning model, dynamic capability, knowledge-based view)	21	11.5
Internationalization process (incl. springboard perspective, strategic asset seeking FDI)	20	11
Institutional theory (incl. institution-based view, culture theory)	19	10
Eclectic paradigm	17	9.5
Other theories (incl. ambidexterity, social capital and network, country of origin, evolution, transaction cost economics, no specific theory)	35	19

A closer examination of the evolution of the theories used (Table 5) suggests some noteworthy changes during the sample period. Specifically, during the early period from 2000 to 2010, despite a limited number of articles published on the topic, we noticed a slight preference for the use of institutional theory. This may be linked to studies that explore the institutional conditions of the home and host countries of EMNEs that impact on their international activities. The comparatively different institutional characteristics presented in emerging and advanced economies attracted scholarly attention to the motivations and outcomes of EMNE international activities. During the later period of 2011 through 2020, we observed a more complex and dynamic picture. First, there has been a significant increase in the use of organizational learning theory in understanding EMNE knowledge management (a rise of 47 counts compared to the early period of 2 counts). This is the most widely used theory across the five major theories identified. This development may be associated with the general theorizing of EMNEs as latecomers in capability development, compared to well-established AMNEs, and OFDI as their main learning channel. Furthermore, as EMNEs have

[8] Some studies concern more than one theory and thus the total number of theories in the table is greater than article number.

gradually developed a wide knowledge network across home and host locations, there is an increasing need to better manage this pool of knowledge within the organizational context in order to enhance innovation performance. A similar argument can be applied to the increasing use of the resource-based view and capability upgrade (21 and 18 counts respectively) in the later period. The popularity of these theories mirrors a growing desire by EMNEs to learn from and catch up with their counterparts in advanced economies. During the same period, the use of the internationalization process model (16 counts), eclectic paradigm (15 counts) and institutional theory (14 counts) has also grown noticeably, which is in line with the rapid growth of OFDI from emerging economies in the past decade. The increased popularity also implies that more studies have paid increasing attention to the institutional conditions of the home and host countries and internal capability of EMNEs as factors jointly affecting OFDI motives and location decisions.

Methodological Approaches Employed

The total number of research methods used was 97 counts[9]; 4 out of the 93 articles used mixed methods whilst the remaining 89 used a single method. Moreover, the most frequently applied method across the 93 articles was quantitative (no=59, or 63% of our sample). This was led by regression analysis (n=50)[10], amounting to 85% of all statistical methods. Structural equation modelling (n=6, 10%) was second. Remaining techniques included event-history study (n=2) and factor analysis (n=1). This preference for quantitative methods has been aided by significantly improved data availability (Luo et al., 2019). Quantitative methods were predominantly employed to examine the cause-effect relationships between EMNE knowledge management, performance, and other factors such as home and host institutions. Qualitative research was also used frequently (n=36, amounting to 39% of the 93 sample articles). Of the 36 qualitative research articles, 34 (94%) employed case studies and 2 (6%) employed comparative qualitative method. The former was employed to explore new phenomena relating to the process of EMNE knowledge management and

[9] Four articles used the mixed-method approach thus the total counts of methods are greater than total number of articles.

[10] Regression analyses include logistic regression estimation methods, cluster and post-hoc regression analyses, meta-analytic regression, dyadic regression, the seemingly-unrelated-bivariate-probit regression, OLS regression, multilevel analyses, multinomial logit regression.

catch-up. This led to new theory development, e.g., the linkage-leverage-learning model and the extension of existing theoretical frameworks such as rapid internationalization – an extension of the internationalization process framework. In terms of preference changes in methods applied between 2000 and 2020, we find no noticeable shift over time. However, the preference for quantitative research (63%) between 2000 and 2020 may suggest that the current state of knowledge of the topic more relies on testing existing theories or empirically specifying new boundary conditions to EMNE knowledge management.

The total number of identified data sources was 120. Out of the 93 articles, 27 used multiple data sources (29%) whilst the remaining 66 (71%) used a single data source. These 27 articles predominantly used one data source as the primary whilst others as complementary sources for the purposes of data triangulation in the case of qualitative studies, or fulfilment of gaps in variable measurements in quantitative studies. Out of the 27 multi-source articles, 2 (7%) used 4 data sources, 7 (26%) used 3 sources, and the remaining 18 (67%) used 2 sources. Moreover, the most frequently used data type was secondary archival data (n=39), amounting to 41% of our sample. This was made up of panel, cross-sectional, or patents data. Face-to-face interviews (n=32, 34%), archival documents (n=28, 30%), and primary questionnaires (n=21, 23%) were also often used. The remaining sources (n=3) included field observation (n=2) and focus group (n=1). We observe that archival data and quantitative questionnaires were predominantly used for theory testing whilst archival documents and face-to-face interviews were mainly adopted for theory development. While qualitative data are mostly used for research questions concerning processes such as learning and knowledge transfer, secondary data are used to examine issues at the firm level concerning causal effects such as determinants and outcomes of knowledge management. There is no significant shift in preference in data sources used between 2000 and 2020. Instead, we see an overall increase in the use of both primary and secondary data sources over time.

Emerging Economies Investigated

Of the regions covered by the 89[11] articles year on year, Asia is the most studied region with 85 total counts, followed by Latin American and Central and Eastern Europe with 14 and 10 counts, respectively[12]. This is further followed by Africa with 4 counts, and the Middle East with 2 counts. We find that the total count studied of the BRICS countries is 81 and non-BRICS is 15. Asia and the BRICS, as the most popular research contexts, were particularly evident between 2011 and 2019, with 76 studies among which 89% on Asia and 67% on China. During the same period, the number of articles on India, Brazil and Russia also showed rapid growth, with 27, 10, and 6[13] articles, respectively. However, it is also worth noting that there appears to be a steady growth in the number of studies on Latin America (with 13 articles since 2010, and 1 prior) and Central and Eastern Europe (with 9 articles since 2010 and none before).

[11] 4 out of the 93 articles focus on the general context of emerging economies without specifying the home country.

[12] Some studies examined more than one country hence the sample is larger than the number of articles.

[13] It is worth mentioning that the earliest article examining Russian MNEs was published in 2011.