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The fintech transformation of banking: Governance dynamics and socio-economic outcomes in spatial contexts

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ABSTRACT

Objective: The objective of the article is to identify and systemize the governance dynamics and related socio-economic consequences of the fintech transformation in banking, while acknowledging spatial contexts.

Research Design & Methods: The research framework comprised Global Production Networks (GPN), Global Value Chain (GVC), and co-evolutionary approaches to guide a systematic literature review in the Scopus, Web of Science, and Taylor & Francis databases for 2016-2021. The final sample comprised 76 sources that became the basis for selective coding and the synthesis of the results.

Findings: Fintech impacted banking governance by creating a dual and interrelated system of global financial networks and a 'mosaic' of territorial financial ecologies and ecosystems, where incumbent banks held an important but not exclusive position. The fintech-enhanced governance transformations had both positive socio-economic effects (improved efficiency, expanded range of services, and inclusion of unbanked or under-served customers) and negative effects (over-indebtedness, surveillance, and exclusion of some customers). Wider socio-economic consequences refered to sustainable development and changes in economic and social behaviour.

Implications & Recommendations: A research framework and agenda for future studies related to the dynamics of fintech-driven governance in banking have been elaborated. The article derives the immediate and wider economic and social consequences of fintech-driven transformations. The results can also be applied in public policies oriented towards sustainable socio-economic development.

Contribution & Value Added: The study provides theoretical and policy-relevant contributions. Firstly, it broadens the research on the transformation of banking governance in the spatial context. Secondly, it contributes theoretically by proposing a research framework of GVC and GPN governance augmented by a co-evolutionary perspective. Thirdly, the article informs policy that seeks financial inclusion for cohesive and sustainable development.

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INTRODUCTION

Governance in the banking industry has been undergoing extensive transformations due to technological innovations, interrelated with market, legal, and social factors. Financial technologies (fintech) reconfigure existing activities, create new activities, and allow new entrants to change the industrial structure (Arslanian & Fischer, 2019; Hill, 2018; Livesey, 2018; Nicoletti, 2017; Scardovi, 2017). The industrial transformation is addressed by regulations towards customer-centric financial services, enhanced by the Covid-19 pandemic (Zachariadis & Ozcan, 2017; Fu & Mishra, 2020; Ozili, 2020; Wójcik & Ioannou, 2020; Wójcik, 2020). These processes lead to the changes in bank governance, *i.e*. institutional structures that regulate the functioning of this industry and affect its economic

outcomes (Williamson, 2005; Colombo *et al.*, 2019). Progressive digitization is also driven by the needs of the most demanding markets and disadvantaged or unbanked customer groups and results in socio-economic consequences, such as inclusion or exclusion from banking services (Bhagat & Roderick, 2020; Salampasis & Mention, 2018).

We are in the process of profound digital transformations of banking, when a plethora of governance forms and unequivocal economic and social outcomes coexist, depending on the spatial (geographical) context of countries and regions. There are considerable research gaps in addressing these transformations, which calls for the identification and systemization of the observed changes to inform further research and policy. Firstly, the existing literature on technological transformation in banking focuses on the efficiency and market expansion of fintech businesses and their new business models, rather than on banks (Tanda & Schena, 2019; Vives, 2017; Boot, 2017; Scardovi, 2017). The transformations of banking with a focus on governance and its spatial dimensions are underexplored (Lai & Samers, 2021; Wójcik, 2021; Ozili, 2018; Kleibert, 2020). This corresponds to the general scarcity of finance research in finance literature on global governance, including global value chain (GVC) and global production networks (GPN) literature (Coe, Lai, & Wójcik, 2014; Kleibert, 2020). Secondly, the research frameworks of GPN and GVC focus on how discrete governance forms (such as the firm, market, and network) affect value migration, upgrading, and territorial development. These theories call for enhancement by dynamic-evolutionary and context-sensitive approaches to capture the high pace of industrial transformations, fluid and emergent rather than discrete and ultimate governance, and related outcomes (Ponte & Sturgeon, 2014; Chen & Hassink, 2022; Lai & Samers, 2021; Coe & Yeung, 2019; Gong & Hassink, 2019; Gong & Hassink, 2020). Thirdly, the economic and social outcomes of technological changes in banking are not unequivocal, thus hindering appropriate policy actions (Langley & Leyshon, 2020; Wójcik, 2020).

Consequently, this article aims to identify and systemize the governance dynamics and related socio-economic consequences of the fintech transformation in banking, while acknowledging spatial contexts. We performed a systematic review of the literature in Scopus, Web of Science, and Taylor & Francis, which represents a unique approach since existing reviews in this area are narratives. As a conceptual background for the literature review, we adopted GVC and GPN approaches (Coe, 2021; Gereffi *et al*., 2005; Gereffi & Lee, 2016; Gereffi, 2018; Coe & Yeung, 2019) and a co-evolutionary approach (Gong & Hassink, 2019).

In response to the research gaps stated above, the article provides theoretical and policy-relevant contributions. Firstly, it broadens the research on the transformation of governance in the spatial context (Coe, 2021; Gereffi *et al*., 2005; Gereffi, 2018; Brun *et al*., 2019). It expands knowledge of the governance dynamics and outcomes in the underexplored banking industry, driven by fintech and moderated by spatial contexts. We identify various concurrent governance solutions and their socio-economic outcomes in the banking industry, depending on geographical contexts. Secondly, this study contributes theoretically by proposing a research framework of GVC and GPN governance augmented by a co-evolutionary perspective. This framework is valuable to identify and explain the dynamics and variety of fintech-driven governance, as it acknowledges the interactions and mutual influences of the transforming banking industry with other agents in spatial contexts (Gong & Hassink, 2019). Thirdly, the article informs policy that seeks financial inclusion for cohesive and sustainable development (Chatterjee, 2020; Frost, 2021; Lai & Samers, 2021; Mehrotra, 2019). It identifies not only digital transformations in banking governance, but also wider socio-economic consequences for financial and GVC inclusion, power, and wealth distribution (Wójcik, 2021). Moreover, this research explains these unequivocal and varied consequences using context conditions.

In the next section, we will present the conceptual background and a research framework to guide the literature review. Then, the methods of systematic literature review and synthesis will be presented. Finally, we will report and discuss the results, specify the contribution, and derive a research agenda.

LITERATURE REVIEW AND THEORY DEVELOPMENT

Fintech Transformative Mechanisms and Banking Governance

Governance represents the institutional structure or sets of rules that regulate a system and affect its performance (Williamson, 2000, 2005; Colombo *et al*., 2019). Consequently, it embraces the patterns of activities performed by relevant entities, collaborative arrangements, and power relations among these entities, public regulation, and the coordination of spatial distribution of economic activity, all of which produce differing socio-economic effects in various spatial contexts (Gomber *et al*., 2017; Williamson, 2000). These governance patterns are strongly affected by technological factors that underlie the composition of activities in socio-economic systems and entities executing these activities (Williamson, 2005; Łasak & Gancarczyk, 2021). The digital transformation in financial services is one of the most profound both in terms of structural changes and the value of an investment in fintech (Coe *et al*., 2014; Kleibert, 2020). We refer to fintech as both ICT-based innovations in financial services and their embodiment or agency as fintech businesses or fintech industry (EBA, 2017; Gomber *et al.,* 2017; Wójcik, 2021; Lai & Samers, 2021).

Fintech innovations and businesses affect the execution and performance of major banking activities, including accounts holding, payments, loans, and credits (Appleyard, 2020; Popelo *et al*., 2021; Scardovi, 2017). They do so through six mechanisms that can be systemized according to the ascending effect (Gross, 2009; von Briel *et al*., 2018; Łasak & Gancarczyk, 2022). The first of them is compression which is a mechanism that provides for the reduction of time to exercise activity, such as the use of Big Data (BD) in credit scoring by human agents. The conservation mechanism reduces resources required for banking activity, *e.g*., automated customer identification and authorization when processing transactions (Babajide *et al*., 2020). The mechanism of expansion ensures the increased availability and scope of banking activities, *e.g.*, mobile payments performed by customers, while substitution replaces one activity with another, *e.g.*, digital banking replacing real bank branches (Wonglimpiyarat, 2017). The combination mechanism involves reconfiguring existing activities to integrate them into a new system, *e.g*., mobile wallets (Son & Kim, 2018). Ultimately, the most radical generation mechanism brings about completely new activities, such as crowdfunding platforms (Cicchiello, 2020; Pinkow, 2022; Riyanto *et al*., 2018).

The mechanisms and effects mentioned might explain the changing patterns of activities in banking and the rules of coordination. However, banking governance should also consider the composition of entities and their relationships, legal arrangements, and coordination of the spatial distribution of economic activity, all of which produce different socio-economic effects in various spatial contexts (Gomber *et al*., 2017). These issues can be addressed with the GVC and GPN governance approaches.

Digital Transformation of Governance From the Perspectives of GVC and GPN

The GVC and GPN approaches focus on how differentiated governance structures affect value creation, capture, and appropriation, and the upgrading and sustainable development of the participants involved in these structures (Coe & Yeung, 2019; Ponte & Sturgeon, 2014). Upgrading means improving the relative competitive position through the development of capabilities to advance into higher value-adding activities (Gereffi & Lee, 2016; Gereffi *et al*., 2005). Recently, the range of governance participants expanded from industrial actors to government, labour, regions, clusters, and society at large (Ponte *et al*., 2019; Gereffi, 2018; Gereffi & Lee, 2016). Consequently, industrial upgrading remains a normative target; however, it turns out to be an interim objective to achieve territorial socio-economic development (Coe, 2021; Ponte *et al*., 2019; Coe & Yeung, 2019).

The upgrading and development depend on the type of governance, which implies power relations and actors' positions in GVC or GPN structures, and rules of collaboration (Gereffi *et al*., 2005; De Marchi *et al*., 2018). The perspectives of GPN and GVC propose a useful lens of how technological standardization and initial capabilities affect generic governance and how governance impacts the prospects for upgrading and development of industries and territories. Generic governance structures comprise the firm, market, and networks (captive, relational, modular) (Gereffi *et al*., 2005; Jacobides

et al., 2018). The GVC and GPN emphasize network governance with a dominant role of leading firms that coordinate suppliers and their own subsidiaries. Hierarchical or captive networks are associated with high technological standardization and low initial resources and capabilities of governance participants compared to the leaders. These relationships raise dependence and offer limited opportunities to share value and upgrade (Gereffi *et al*., 2005). Regardless of technological standardization, higher resources and capabilities of network participants produce more balanced, heterarchical governance, which enhances value sharing and development (Gereffi *et al*., 2005).

More recently, the GVC and GPN approaches have also suggested other governance determinants, such as public regulation and societal movements relevant for strategic coupling within global governance (Gereffi & Lee, 2016; Coe & Yeung, 2019). Responsible banking services are fundamental to economic stability and sustainable development; therefore, these services are regulated at the national and international levels (Bömer & Maxin, 2018). Additionally, both the GVC and GPN perspectives seek to recognize new forms of governance driven by technology and social group behaviours (Coe, 2021; Ponte *et al*., 2019). However, in the GVC and GPN literature, financial services and banking are underexplored, despite their fundamental importance, both as entities with distinct governance and as intermediary services included in other industrial value chains (Kleibert, 2020). Only recently did the perspectives of GPN and GVC acknowledge the specificity of financial services as global financial networks (GFN) and the structure of the GVC network (Coe *et al*., 2014; Ponte *et al*., 2019).

Similarly to other development processes of evolutionary and multidimensional nature, the governance dynamics and related outcomes require the investigation of complex and interrelated factors in multiscalar spatial contexts of countries and regions (Fornahl & Hassink, 2017; Knight & Wójcik, 2017; Trippl *et al*., 2015). This also applies to banking governance that reveals differences depending on the context of initial socio-economic development and institutional factors, such as government involvement, legal arrangements, and historical paths (Wójcik, 2020; Lai & Samers, 2020; de Goede, 2020). The perspectives of the GVC and GPN are well equipped to describe how discrete governance structures affect industrial and territorial development. However, they are less able to describe the dynamics of governance structures from process and contextual angles. These issues can be addressed by an evolutionary perspective on industrial dynamics, recently adopted in studies on transformations of financial services (Chen & Hassink, 2022; Coe & Yeung, 2019; Lai & Samers, 2021).

The evolutionary perspective acknowledges the complexity of industrial change by investigating a broad array of relationships among agents and factors in the historical, path-dependent perspective (Martin & Sunley, 2006; Frenken & Boschma, 2007; Gancarczyk & Ujwary-Gil, 2021). Within evolutionary research, the concept of *co-evolution* is distinct in emphasizing the concurrent structural changes of entities due to their interactions and mutual influences, rather than unidirectional influence (Ter Wal & Boschma, 2011). The co-evolutionary perspective encourages investigating how relevant actors, such as banks, fintech companies, regulators, and customers, interact to produce governance changes along with economic and social impacts (Gong & Hassink, 2019; Chen & Hassink, 2022). It is also context-sensitive in explaining variegated development paths and outcomes (Gong & Hassink, 2020).

Research Framework

Figure 1 highlights a research framework for a systematic review of the literature specified in the Research Methodology section. The major inference is reflected in the solid upper boxes linked with bold and solid arrows, which suggest fintech impacting governance change that, in turn, induces socio-economic outcomes (Williamson, 2000, 2005; Colombo *et al*., 2019; Lai & Samers, 2020; de Goede, 2020). In the related dotted boxes, the expected fintech influences, governance changes, and outcomes are specified with the terms to code the review results. Technological impacts must be considered in conjunction with spatial contexts and external shocks that affect fintech developments, governance changes, and socio-economic outcomes (non-bolded solid arrows; the terms to code the literature review in the dotted boxes) (Coe & Yeung, 2019; Ponte & Sturgeon, 2014; Coe, 2021; Ponte *et al*., 2019).

Besides the major relationships among the framework components (both bolded and non-bolded), the framework also acknowledges coevolutionary feedback relationships and interactions among the components that may happen in the longer run, as suggested with the dotted arrows (Chen & Hassink,

2022; Coe & Yeung, 2019; Lai & Samers, 2021). For instance, fintech affects governance changes; however, the new governance (power relations, lead firms) may influence the directions of fintech development, and thus new governance.

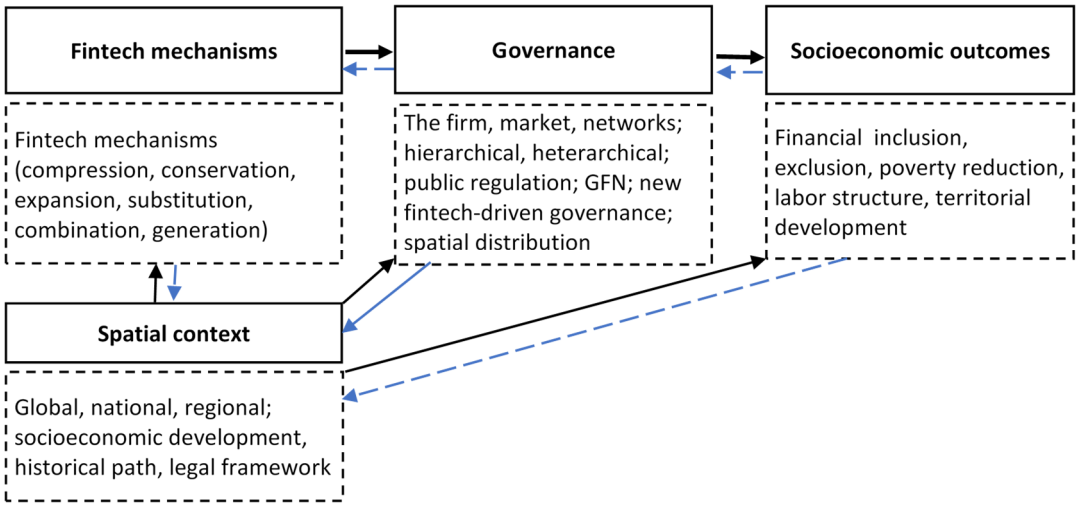

Figure 1. The research framework of fintech-driven banking transformations and their results

Source: own elaboration.

The framework uses the existing constructs of fintech mechanisms and governance in a novel way, by conceptualizing relationships among these constructs to produce socio-economic outcomes. These novel inferences can be specified as the following propositions:

Proposition 1: Fintech transformative mechanisms produce socio-economic effects through changes in governance acting as a mediator of this relationship. That is, fintech mechanisms affect governance changes that, in turn, generate socio-economic outcomes.

Proposition 2: Spatial contexts embracing varied economic and institutional systems and historical paths affect the adoption of fintech mechanisms, governance changes, and ultimate socio-economic outcomes. Given the idiosyncratic initial conditions, spatial contexts can explain ambiguous socio-economic outcomes from fintech.

Proposition 3: In the long run, fintech mechanisms, governance, spatial contexts, and socio-economic outcomes reveal feedback relationships.

The research framework will lead systematic literature to address questions resonating with the aim of this article:

RQ1: How does existing research describe the fintech-driven dynamics of governance in banking, depending on the spatial context?

RQ2: How does the existing research describe the socio-economic effects of the banking governance transformed by fintech in various spatial contexts?

RQ3: What are the causalities between fintech mechanisms, governance, and socio-economic outcomes in various spatial contexts?

RESEARCH METHODOLOGY

The method comprised the development of the research framework (Figure 1), systematic literature review, data coding, and synthesis of results (Xiao and Watson, 2019; Tranfield, Denyer, and Smart, 2003). The *systematic literature review* was performed in the large and recognized databases of Scopus and Web of Science, and the Taylor and Francis database covering the leading journals and book series emphasizing geographical contexts. Keywords 'finan * technolog *' or 'fintech *' and 'bank *' or 'finan * serv *' were used, generating 793 Scopus results, 299 WoS results, and 339 T and F results. The query was

limited to social sciences and related sciences (*e.g.,* excluding medical or physical sciences), and to the most intense publication period in this field, *i.e.*, 2016-2021. The reviewed literature predominantly refers to the period after the crisis of 2007-2009 to the present. Due to the premature stage of this research area, the search comprised peer-reviewed articles, books, book chapters, and conference papers.

Two researchers examined the titles, abstracts, and keywords of the initial samples and selected publications dealing with banks and fintech in spatial contexts (*e.g.,* global, national, regional). The publications that did not cover all three components of banks, fintech, and territorial conditions were excluded. After compiling the results and removing repetitions, we identified an interim sample of 114 items for full text review, which resulted in 62 sources (marked with '*' in the reference list). Considering the premature research stage, a manual search was performed to avoid possible inadequacies and delays in coding and indexing by the databases (Hoon, 2013). This generated 14 additional items (marked with '┼' in the reference list), giving a total final sample of 76 sources. In the final sample, the academic peer-reviewed articles counted 50 items, while the remaining peer-reviewed references included monographs, book chapters, and conference articles. The sample comprised predominantly conceptual and review articles (80%). Original empirical evidence proved to be scarce and often based on qualitative case studies (20%).

According to the framework (Figure 1) that adopts recognized theories with their established concepts, we applied selective (closed) and deductive (theory driven) *coding* (Villiger *et al.*, 2021; Tranfield, Denyer, and Smart, 2003). To code the types of the major constructs, we used the terms included in Figure 1 and explained earlier in the Literature Review and Theory Development (Hoon, 2013). For instance, the types indicated for governance inform whether fintech mechanisms transform it to market or network or hierarchy. These coding terms were used as keywords for the search within the final sample of articles (Villiger *et al.*, 2021). In the absence of particular code terms, we inferred and classified the types of the major constructs based on their descriptions, such as hierarchical governance inferred from power relations being top-down and dominated by particular entities. Two researchers reviewed the articles and independently coded the information. Manual coding was enhanced by tabulations with search codes and quotations, or paraphrases evidencing the classifications. After independent coding, the researchers exchanged information and discussed inconsistencies, eventually arriving at a consensus on the classification of terms and causalities among the main constructs (Hoon, 2013; Breslin & Gatrell, 2020). Inconsistencies appeared predominantly when the coding was based on inference from articles that directly did not quote the search terms. This process resulted in one set of coding tables, which were later jointly discussed and synthesized into results tables included in the manuscript. The *synthesis* was an iterative process of analyzing the results with reference to the conceptual foundations and the research framework (Breslin & Gatrell, 2020).

RESULTS AND DISCUSSION

Fintech-Driven Changes in the Governance of the Banking Sector

The impact of fintech mechanisms depends on the geographical context (*e.g.*, varied government involvement, socio-economic advancement, initial development of banking), with a profound effect in developing countries (Table 1).

In the Global South and China, where digital solutions fill the market gap, fintech represents not only the substitution of standardized banking functions but also the substitution of banks as intermediaries (Langley, 2016; Brown & Piroska, 2021; Kong & Loubere, 2021). Examples include credit scoring and lending in developing countries with weak banking systems (e.g., DigiFarm in Africa) (Brooks, 2021) or public governance that allows the replacement of banking activities with fintech (e.g., lending platforms and an industry-specific JD platform in China) (Kong & Loubere, 2021). In countries with strong banking sectors (e.g., Western European countries) and/or public governance protective of incumbent banks (e.g., India), digital solutions replace predominantly individual functions and complement extant activities with resource conservation and time compression rather than substitute banks (Chiu, 2017; Singh, 2019; Jain & Gabor, 2020). However, this general observation should be nuanced with respect

to customer segments and regions within national markets (Hammerschlag *et al*., 2020). Fintech performs spatial expansion and substitution, and generation of the offerings for the underserved and unbanked market segments in poorer regions, regardless of the country's wealth (Clarke, 2019; DawnBurton, 2020 Campbell-Verduyn, Goguen & Porter, 2019).

Table 1. Fintech transformative mechanisms in banking in the spatial context

Type of fintech mechanisms	*Relevant findings*	*Selected articles*
Substitution	In the UK, the substitution of traditional lending in the poorer regions and disadvantaged market segments in cities	DawnBurton (2020)
	Lending platforms from the UK, the USA, and China heading towards developing economies	Clarke (2019)
	Systemic substitution of banks as intermediaries in the Global South	Langley (2016) Brown and Piroska (2021) Brooks (2021)
	Fintech substituting banks in rural China	Kong and Loubere (2021)
Expansion	Expansion of geographical reach and substitution by AI and algorithms on a global scale	Campbell-Verduyn, Goguen and Porter (2019)
Compression/ Conservation	Fintech complementary to banks in the Western countries with the developed banking system	Chiu (2017) Lao (2020)
	Government-led Indian digital identification project complementary to banks' system	Jain and Gabor (2020)
Generation	Regulation limits the reach of crowdfunding in Europe to national markets.	Cicchiello (2020)
Combination	Mobile wallets and payment ecosystems in China, Europe, and the US with applications in Brazil, Indonesia, and Kenya	Omarini (2018) Iman (2018)

Source: own study.

Based on fintech mechanisms, the reviewed studies reflect a breakthrough transformation of governance, comprising the scope of activities, power relations, and types of actors. Table 2 profiles the dynamics and variety of co-existing governance solutions.

The transforming governance is described using both generic and recognized governance modes and new governance specific to digitalization. Regarding the fintech impact on *generic governance modes* (the firm, network, market), many banks adopt fintech substitution within their internal governance (Lai, 2020). The depth of transformation ranges from the traditional governance scope with material infrastructures to own digital subsidiaries to purely virtual status (Lai, 2020; Kleibert, 2020). Fintech enables the reduction of some resources (*e.g.*, physical branches) and aggregating functions (*e.g.*, mid-office splitting to the front and back offices). Consequently, the governance scope becomes functionally shortened, but expanded geographically with new channels of communication to serve customers (*e.g.,* the Internet and mobile banking in rural areas) (Kong & Loubere, 2021; DawnBurton, 2020).

However, cost pressures reinforced by the 2007-2009 crisis, scale economies, the expansion of fintech businesses, and regulations enhancing this expansion, and the recent Covid-19 pandemic accelerated a more profound governance change (Wójcik & Ioannou, 2020). This included a transition from the bank's internal governance to network and market governance in collaboration and competition with new entities offering bank services (Langley, 2016; Brown & Piroska, 2021; Bömer & Maxin, 2018). The new actors comprise fintech companies, BigTechs (GAFA in the United States and BAT in China), and other manufacturing and service companies that extract value and upgrade to higher value-adding functions, such as credit scoring, lending, and advisory (Brown & Piroska, 2021). The result is an even more functionally shortened governance of banks, which, according to the most radical scenario, could be reduced to clearing houses (Langley, 2016). However, the geographical and market scope is often expanded by collaboration with global fintech specialized in selected functions, such as creditworthiness assessment of creditworthiness (*e.g*., the EFL platform), payments, and P2P lending (Bernards, 2019; Clarke, 2019).

Table 2. Fintech-driven dynamics of banking governance in spatial contexts

Governance type and dynamics	***Relevant findings***	***Selected articles***
Generic governance modes (market, network, the firm) *(from the bank governance to networks and markets)*	Fintech stimulates a transition from bank internal governance to networks and markets on a global scale.	Langley (2016) Brown and Piroska (2021)
Public vs private governance *(from public governance of private banks to the increased importance of private governance in operations and regulations /sandboxing/)*	Development finance integrated with commercial microfinance by private fintech corporations in poorer countries	Langevin (2019) Brooks (2021)
	EFL established commercial networks with banks, microfinance institutions, credit scoring firms, and retailers in Latin America, Africa, Indonesia, and Russia.	Bernards (2019)
	Strengthened public post-crisis regulations; fintech sandboxing in the UK driven by corporate interests	Brown and Piroska (2021)
Fintech-specific governance *(emerging modes of governance based on standardization and algorithms)*	Emergent governance *through, with,* and *by* algorithms on a global scale	Campbell-Verduyn, Goguen, and Porter (2017)
	Governance as an information infrastructure augmented by technologies on a global scale	Campbell-Verduyn, Goguen, and Porter (2019)
	Platform economy as governance that represents reintermediation of banking services	Langley and Leyshon (2021)
Hierarchical vs heterarchical governance *(from hierarchical dominance of banks to heterarchical networks of banks, fintech, and BigTechs to hierarchical dominance of banks and BigTechs)*	Governance from banks as intermediaries towards ecosystems, then hierarchization with monopolistic power of BigTechs	Langley (2016)
	Disruption of traditional intermediaries; banks creating own platforms; the new platforms often linked with incumbent institutions	Clarke (2019)
	Maintenance of postcolonial asymmetric power relations and dependence among countries, and firming these relations with digitized financial infrastructures (SWIFT, BD)	Langevin (2019) de Goede (2021)
Financial ecosystems *(emerging forms of network governance for retail markets and place-based projects; public and private entities, including banks)*	Power relations become polycentric; governance from banks as intermediaries towards multi-actor and place-based financial ecologies with the retained position of banks in Western countries; banks sticky to home countries but with expanded spatial reach	Langley (2016) Lai and Samers (2021)
	The financial system comprising a mosaic of smaller, territorial financial ecologies	Lai (2020) Appleyard (2020)
	Alternative governance in parallel with traditional systems	DawnBurton (2020)
	Fintech concentrated around the established centers with related financial and Internet industries	Chen and Hassink (2022)
Global financial networks *(global networks of city financial centers maintaining its position; new financial centers in Asia; new fintech-driven centers in high tech clusters and mid cities; preserved spatial distribution of labour; possible labour reductions by fintech)*	New financial centers in Asia but the retained position of older hubs in London, New York, and Europe; offshore mid- and back-office functions in India and the Philippines	Lai *et al*. (2020)
	Fintech transformation to be led by banks and BigTechs; outsourcing by banks to mid-size financial centers in non-core cities; IT substitution will retain extant governance and the power of large financial centers; fintech businesses grow in technology centers rather than financial centers in the USA	Wójcik and Ioannou (2020) Wójcik (2020) Wójcik (2021)
	Integration of bank functions and relocation; offshoring to Asia and Eastern Europe based on bank subsidiaries and outsourcing	Kleibert (2020)

Source: own study.

The reviewed literature often addresses *private governance* (governance by private entities) *vs public governance* (regulations and policies by public entities). Post-crisis regulations tightened the control over risks in incumbent banks but also opened banking to the entry of commercial nonbank entities (Basel III arrangements, Payment Services Directive 2) (Campbell-Verduyn *et al*., 2017). In the UK and the USA, the sandboxing and RegTech initiatives aim to protect customer interests, promote financial inclusion, and ensure legal compliance of fintech innovation and businesses. In general, the regulation of fintech expansion is more comprehensive and restrictive in the North with strong bank sectors than in the developing and growing countries of the Global South (Chiu, 2017). On the other hand, public involvement in sandboxing in the UK is criticized for being too permissive and promoting the corporate interests of fintech, rather than protecting customers and alleviating risks (Brown & Piroska, 2021). Corporate activity in public regulation represents a shift from public governance of private banks to private governance (Campbell-Verduyn *et al*., 2017). The role of corporate private governance is also observed in the World Bank's development initiatives towards financial inclusion (Arner *et al*., 2020). In Africa, these initiatives were entered by private fintech platforms owned by Western corporations (Langevin, 2019; Brooks, 2021). The platforms dominated microfinance, bundling it with other business services, such as product development and economic advisory (Kong & Loubere, 2021). In China, similar corporate initiatives of large platforms with diversified financial and product development services (Alibaba, Tencent, JD) have recently been embraced by the state control, while earlier they featured a liberal policy (Chiu, 2017; Kong & Loubere, 2021).

The transition from the bank to network governance, the increased role of private vs public governance in banking, and the advancement of financial technologies towards complex functions, stimulated the conceptualizations of *fintech-specific governance*, such as algorithmic governance or platform governance (Campbell-Verduyn *et al*., 2017; Langley & Leyshon, 2021). Complex functions performed by artificial intelligence and complex service architectures enabled by application program interfaces form a technology-based regulatory mechanism deemed as an additional discrete governance type (Campbell-Verduyn *et al*., 2019). This mechanism is designed and controlled by humans; nevertheless, it is also enabled to perform some activities independently, learn, and determine lending decisions (Bernards, 2019; Waliszewski & Warchlewska, 2020). Fintech governance attempts to combine high standardization with customization and personalization to enhance an expansion of services from the Global North to the South (Brooks, 2021; Coetzee, 2018). This means the geographical expansion and the insertion of territories and enterprises from the developing countries into GVCs of financial and nonfinancial corporations. However, the personalization of user accounts by platforms atomizes users, *i.e*. reduces their interactions to platform algorithms, while breaking the embedded territorial, industrial, and personal networks (Brooks, 2021).

The transition towards networks, private governance, fintech-specific governance, and expanded representation of actors have been associated with the evolution of coordination and power relations. Regarding the coordination, banks became disintermediated due to the shortening governance scope and co-opetition with other service providers. This marked the transition from *hierarchical governance* with bank dominance towards *heterarchical* governance, with more balanced and democratic power relations (Okoli & Tewari, 2020; Kraus *et al*., 2021). However, further evolution has been perceived as reintermediation with new hierarchical dominance shared by BigTechs and banks rather than fintech businesses (Langley, 2016; Clarke, 2019). Besides technology and public regulation (sandboxing, RegTech, open banking), the driving force was Covid-19, which raised risk avoidance and shortages to funding fintech, thus reaffirming the position of strong incumbents with financial power and access to customer markets on a global scale (Wójcik & Ioannou, 2020; Lai, 2020). Increasingly diversified BigTechs form proprietary markets for a range of financial and nonfinancial products and hold diversified assets, including large datasets of customers (Bernards, 2019). The associated network effects and the growing role of private governance strengthen corporate dominance and could lock in customers and territories (Campbell-Verduyn, Goguen & Porter, 2017; Singh, 2019).

The above governance transformations (generic, public vs private, fintech-specific, hierarchical vs heterarchical) reveal important territorial specifics; nevertheless, they are not fundamentally oriented at geographical aspects. They mark general processes informing the functioning and emergence of spatial

bank governance*, i.e. global financial networks* and *financial ecologies or financial ecosystems*. Financial ecologies are systems targeted at geographical environments that comprise networks of private and public actors, *e.g.*, banks, fintech, public entities, enterprises and customers (Langley, 2016; DawnBurton, 2020). They can be considered place-based and directed at projects relevant to their target territories (Lai, 2020; Chen & Hassink, 2022; Appleyard, 2020). Financial ecosystems form flexible, project-tailored structures without predetermined lead roles in particular projects (Langley, 2016; Lai & Samers, 2021). The actors gather to implement the project, but they can be both local and global entities with an international reach (*e.g*., crowdfunding platforms). Since the functioning of the system is often platform-based, the leaders in specific projects act as multisided platforms that link other actors.

Global financial networks (GFN) capture banking governance within a broader array of financial and advanced business services (Coe *et al*., 2014; Wójcik, 2021). This view resonates with banks as lead firms within modular networks of coordinating platforms (fintech) and specialized service providers (Knight & Wójcik, 2017). The GFN concept considers banks anchored in global financial centers (cities) and offshore jurisdictions offering favorable taxation. Enhanced by digitalization, GFNs retained scope and established financial centers maintained their position after the 2007-2009 crisis, with prospects to continue this scope and leadership despite Covid-19 (Cassis & Wójcik, 2018; Wójcik & Ioannou, 2020). Recent changes in GFN include the increased role of new financial centers in Asia (Lai, 2020; Lai *et al*., 2020). Ultimately, we do not observe globalization in reverse in the functioning of GFNs as global hubs related to world cities and favorable tax jurisdictions; although, governments might take actions to prevent tax avoidance by offshore jurisdictions (Lai *et al*., 2020).

Another perspective of GFN considers the dispersion of labour in banking governance. Higher value-adding activities of front offices are retained in financial hubs. Fintech-driven standardization of lower value activities in mid and back offices enables their integration for scale economies, and then relocation to mid-income and/or developing countries of Eastern Europe (e.g., Poland) and Asia (e.g., India and Philippines) (Lai, 2020; Wójcik, 2021 Kleibert, 2020). More profound changes might occur in the labour structure of offshore activities due to the substitution of human activities by increasingly advanced AI. Jobs can be retained in locations where skilled human resources perform more complex functions at lower labour costs (Wójcik & Ioannou, 2020; Kleibert, 2020). Besides the predominance of large-city financial hubs, the development of fintech businesses enhanced midsize and nonfinancial centers. High-tech start-ups prefer technology hubs and related industrial clusters for access to knowledge and capital (Chen & Hassink, 2022).

Socio-economic Outcomes in Geographical Contexts

The fintech-driven dynamics of governance is responsible for socio-economic effects that differ, depending on geographical contexts (Table 3).

Table 3. The spatial socio-economic consequences of fintech-driven governance dynamics in banking

Type of governance dynamics	***Relevant findings***	***Selected articles***
From the bank governance to networks and markets	In the Global North, networks of banks and new entrants address customers' expectations of tailored and personalized services.	Omarini (2018)
	Loans from non-bank entities enhance inclusion but also social divisions in the Global South by excluding entrepreneurially unskilled borrowers.	Bhagat and Roderick (2020)
	The role of fintech in financial inclusion is heterogeneous in the Global South countries.	Iman (2018)
	Covid-19 pandemic accelerates digital services and e-commerce in developing countries.	Trisnowati *et al*. (2020)
	Network and market-based P2P lending and crypto-currencies fuel speculation and abuses on a global scale.	Janin and Gabor (2020) de Goede (2020) Wójcik (2020)

Type of governance dynamics	*Relevant findings*	*Selected articles*
	Financial marketization as a type of financialization remains uneven according to racial, occupational, or social classes in the South and according to different categories of investors in the Global North (HFT).	Langley (2016) Lai and Samers (2021)
The increased role of private vs public governance	Deregulation towards open banking improves the availability and quality of services in the EU.	Döderlein (2018)
	Fintech supports the policy for financial inclusion and poverty alleviation in the Global South.	Demir *et al*. (2018, 2020)
	Despite the fintech expansion, socio-economic inequalities in accessing bank services are preserved in poorer countries.	Demirgüç-Kunt *et al*. (2020)
	Change in the African countries' policy towards refugees – from aid to self-sufficiency based on financial inclusion.	Bhagat and Roderick (2020)
	Accelerated economic development in the Global South, fintech-based microfinance for agriculture impacts product development, labour, and sectoral structure; development of e-commerce.	Kong and Loubere (2021)
	Excessive inclusion (failed loans) in poor countries leads to over-indebtedness and resource extraction.	Langevin (2019)
	The exploitation of poorer countries by large fintech platforms from the Global North	Boamah and Murshid (2019)
The emergence of fintech-specific governance	BD credit scoring enable financial inclusion of the consumers lacking credit history in the Global South	Langevin (2019)
	Algorithms personalize investment portfolios for sophisticated investors, mostly in developed economies.	Gupta and Xia (2018)
	Psychometric credit scoring and BD assess the creditworthiness of the unbanked, but the criteria are inadequate for the Global South.	Bernards (2019)
	Inclusion is problematic and obscured by surveillance and social stratification through BD that reaffirm the established inequalities on a global scale.	Campbell-Verduyn *et al*. (2017)
	Mobile money and payments enhance inclusion and self-sufficiency behaviours among the poor and unbanked.	Glavee-Geo *et al*. (2019)
	Rapid digitalization (e.g., cashless transactions) excludes some consumers, predominantly in the South.	Wójcik (2020)
Dynamics from hierarchical to heterarchical to hierarchical power relations	Alternative service providers (e.g., crowdfunding platforms) broaden the opportunities and improve borrowers' bargaining position against banks on a global scale.	Nicoletti (2017)
	Diversified providers of payment and lending enhance or allow for a democratization of relationships among customers and service providers on a global scale.	Chiu (2017)
	BigTechs and fintech address wider consumer needs and lower capital costs compared to banks in a global context.	Tanda and Schena (2019)
	BigTechs assume the power to impact socio-economic structures in the South.	Boot (2021)
	By merging finance with other products, diversified platforms affect purchasing behaviours, labour, and industrial structures.	Lai and Samers (2021)
Emergence of financial ecosystems	Ecosystems enhance social networking (like WeChat or Weibo in China, Oi Paggo in Brazil, M-PESA in Kenya) and private-public networking (X-Road platform in Estonia).	Zhang-Zhang *et al*. (2020)
	Opportunity for farmers and SMEs from developing countries to grow on international markets and access technologies.	Brooks (2021)
	Changes in socio-spatial relations: institutional relationships within entrepreneurial ecosystems, digital inclusion via social platforms, exclusion of digitally unskilled participants, inequalities in access due to technical limitations.	DawnBurton (2020) Lai *et al*. (2020)

Type of governance dynamics	*Relevant findings*	*Selected articles*
Dynamics of GFN – established centers versus new financial hubs	Stagnation or decrease of employment in the major financial centers; the new financial centers in developing countries are weaker compared to developed economies	Wójcik and Ioannou (2020)
	Reduction of standardized jobs in developed countries; in mid and low-income countries, the creation of new jobs vulnerable to technological substitutions	Lai *et al.* (2020)
	In developing countries, the growing role of cities and their networks in establishing links with international markets	Scardovi (2017)
	The development of new financial centers and networks due to locational choices of fintech and related absorption of labour from other sectors in China	Chen and Hassink (2022)

Source: own study.

The *governance dynamics from the bank to networks and markets* enhance the diversifications of services and customization to individual needs in Western countries (Omarini, 2018; Boot *et al*., 2021). In Global South, fintech businesses enable financial inclusion, however, with varying degrees in different countries (Bhagat & Roderick, 2020; Coffie *et al*., 2020; Kim, 2020). At the same time, customers lacking ICT-Internet skills and resources suffer exclusion (Trisnowati *et al*., 2020). These processes vary depending on the context, *e.g.*, they focus on the change from cash-based to a cashless society in the Chinese market, transfer of remittances in African refugee camps, or organization of payment for the unbanked in Brazil (Iman, 2018; Jagtiani & Lemieux, 2018; Kim, 2020). External shocks, such as the 2007-2009 financial crisis and Covid-19, have strengthened the role of the fintech industry, thus accelerating inclusion and reinforcing financialization (Langley, 2016; Lai *et al*., 2020; Lai & Samers, 2021). However, compared to bank governance, markets and networks weaken safeguards against speculation and legal abuses (e.g., financing terrorism, washing money laundering) (Jain & Gabor, 2020; de Goede, 2020).

Related to the effects of networks and markets are the outcomes from the increased impact of *private versus public governance.* In the North, the deregulation of open banking and the entry of nonbank commercial entities improved the quality of financial services (Döderlein, 2018; Hodson, 2021; Passi, 2018; Zetzsche *et al*., 2020), and stimulated e-Commerce and consumption (Chen *et al*., 2017). Select disadvantaged market segments turned to alternative finance, e.g., P2P lending (Maskara *et al*., 2021; Jagtiani and Lemieux, 2018; Suryono *et al*. 2021). However, regulatory sandboxes with fintech participation are perceived as amplifying fintech risk behaviours at the cost of customer protection (Boot *et al*., 2021; Brown & Piroska, 2021).

In the South, private governance of fintech platforms is engaged in development policy (Demir *et al*., 2020; Jalil *et al*. 2022) transforming it from aid-based to oriented on self-sufficiency (Bhagat & Roderick, 2020). The enabling role of private platforms comprises the provision of microfinance to the unbanked in the the peripheries, money transfers from migrant workers (Gupta & Xia, 2018), economic development through job creation and the development of e-Commerce and agriculture (Coffie *et al*., 2020; Kong & Loubere, 2021). The research also reports some negative effects, such as over-indebtedness (Langevin, 2019), and exclusion of failed lenders, illiterate in banking (Boot *et al*., 2021). The far-reaching impacts are the preservation of inequalities in accessing finance (Demirgüç-Kunt *et al*., 2020) and the extraction of scarce resources from poorer societies (Boamah & Murshid, 2019).

Emergent *fintech-specific governance* enables better adjustment to sophisticated investors with ICT-Internet skills in Western economies (Gupta & Xia, 2018; Langevin, 2019). In the South, mobile services, algorithms, and AI allow for the assessment of the unbanked and SMEs lacking credit history and thus enhance their access to basic loans (Agarval & Zhang, 2020; Chen and Yoon, 2021; Campbell-Verduyn *et al*., 2019; Kong & Loubere, 2021). Technological standardization inevitably leads to over-simplification of the formatted psychometric criteria and abstraction of other abilities in credit scoring, such as productive capacity (Bernards, 2019). The creditworthiness criteria adopted from the North are often inadequate, and rapid digitalization excludes customers unwilling or unable to transact cashless (e.g., in Brazil, China, Ghana, Indonesia) (Bernards, 2019; Glavee-Geo *et al*., 2019; Iman, 2018;

Kapron, 2018; Langley & Leyshon, 2021). Threats from algorithm-based surveillance, control, social stratification, inadequate assessment criteria, and improper use of customer data are universal, still more pronounced in developing countries (Clarke, 2019; Lai & Samers, 2021). In addition, automation and robotization cause job losses in standardized bank activities.

The change in power relations and dynamics *from hierarchical bank dominance (disintermediation) towards more democratic, heterarchical governance* improved the bargaining position of lenders to achieve more favorable financing conditions and capital cost on a global scale (Nicoletti, 2017; Chiu, 2017). This effect is especially significant in developing countries of Africa, South America, and South-East Asia (Fenwick and Vermeulen, 2020; Glavee-Geo et al., 2019; Kim, 2020). Services distributed by non-bank providers contribute to poverty reduction, higher consumption, and lower consumer discrimination (Boamah & Murshid, 2019; Demir *et al*., 2020; Glavee-Geo *et al*., 2019; Tanda & Schena, 2019). More far-reaching consequences are changing consumer behaviours (self-control over investments, more sophisticated demand), labour markets (enhanced employment in rural areas), and the development of the sharing economy in the global context (Lai & Samers, 2021). On the other hand, BigTechs reintermediate banking towards a new hierarchization with the power to reshape the socio-economic structures (*e.g*., Chinese company Taobao enhancing employment in rural areas and reversing massive migrations to cities) (Boot, 2021; Tanda & Schena, 2019; Lai & Samers, 2021).

Financial ecosystems represent platforms for social networks and foster cooperation through private or private-public groups both in the North and South (Zhand-Zhang, 2020). Ecosystems address the problems of poor infrastructure, bank account shortages, and noncash payments as exemplified by mobile payment ecosystems absent from traditional banks in Kenya, Nigeria, and Uganda (Babajide *et al*., 2020; Iman, 2018; Wójcik, 2021). Furthermore, financial ecosystems ensure a broadened choice of diversified financing (Łasak, 2022; Zetzsche *et al*., 2020). The resulting changes in sociospatial structures include reduction of inequalities and exclusion, as well as responsiveness to territorial specifics and overcoming local resource constraints (DawnBurton, 2020; Jiao *et al*., 2021; Lai *et al*., 2020).

Global financial networks are oriented towards investment projects that could link the rich North with the poorer South (Chen & Hassink, 2022; Passi, 2018). Due to the fintech innovations, the established banking centers experience stagnation and decrease in employment, *e.g.,* in some standardized functions of financial analytics (Wójcik & Ioannou, 2020). Concurrent labour increases in outsourcing centers or subsidiaries in developing countries could be temporary and vulnerable to technological substitutions (Lai *et al*., 2020; Kong & Loubere, 2021). Emerging financial centers in Asia and new agglomerations of fintech companies lead to a greater spatial polarization and development opportunities for new territories stimulated by the demands of high-tech experts for life quality (Mainelli, 2006).

Discussion

We have identified and systemized the impact of fintech on governance dynamics in banking and related socio-economic consequences in spatial contexts. In response to *RQ1 regarding fintech-driven governance dynamics*, this research identified the emerging, dual, and interrelated system of global financial networks and a mosaic of territorial financial ecologies or ecosystems, where incumbent banks hold an important but not exclusive position (Lai, 2020; Coe *et al*., 2014). The GFNs are networks with banks as lead firms seeking large investment projects on a global scale (Wójcik & Ioannou, 2020; Wójcik, 2021; Kleibert, 2020). Financial ecosystems address retail customers, firms, and place-based projects by connecting territorial private and public actors, global, national, and regional entities, as well as various categories of financial service providers, such as banks, fintech, and BigTechs (Langley, 2016; Lai, 2020; DawnBurton, 2020). The dual system embraces global (GFN) and local (ecosystems) focus (Chiu, 2017; DawnBurton, 2020). The latter is increasingly important against the advancing virtualization of bank branches in medium-sized and small locations with limited access to both retail and investment finance (Wójcik & Ioannou, 2020).

The GFN and ecosystems are interrelated and can be combined in funding projects (DawnBurton, 2020). Financial ecosystems target local projects, nevertheless, they can source from global finance providers, *e.g.,* a firm from a particular region or country ecosystem can access crowdfunds in global financial or technological centers (Scardovi, 2017; Brooks, 2021; Chen & Hassink, 2022; Wójcik, 2021).

Fintech mechanisms profoundly affected the functions, configurations, geographical reach and dispersion, and the type of actors in banking (Chen & Hassink, 2022). The synthesis observation is that the governance scope has been functionally shortened, integrated, and opened to network collaboration with nonbank entities. At the same time, this scope has been expanding geographically, both in terms of markets, collaborators, and labour offshoring. Digitalization and external shocks (crises, pandemic) improved rather than reversed globalization in banking (Boamah & Murshid, 2019; Lai *et al*., 2020).

In response to RQ2 regarding the socio-economic outcomes of fintech-enhanced governance in spatial contexts, our research has identified not only industry-market effects but also wider consequences for poverty alleviation and sustainable development (Arner *et al*., 2020; Iman, 2018; Babajide *et al*., 2020). In the Global North and countries with developed banking sectors, direct effects complement the existing banking system and include improved efficiency, an expanded range of services and their upgrade (customization and personalization), as well as the inclusion of unbanked or underserved market segments (Omarini, 2018). However, there are also downside effects of overindebtedness, surveillance, and exclusion due to the lack of literacy and resources in ICT-Internet (DawnBurton, 2020; Friedline *et al*. 2020). In the South and countries with less developed or absent bank systems, direct effects are more profound, involving the substitution of traditional banking, the provision of basic financial services and inclusion into GVCs. The above-referred downside effects also turn out to be fiercer than in the North (Bhagat & Roderick, 2020; Trisnowati *et al*., 2020).

In terms of the larger consequences for poverty alleviation and sustainable development, in the North, the literature supports the direct effects of inclusion rather than poverty reduction. Bank policies are more restrictive than in the South, but rather reactive than proactive in the attempt to integrate technological changes and fintech businesses into the legal framework and banking governance (Knaack & Gruin, 2020). This raises strong calls for more public participation and proactivity in ensuring sustainable development, by protecting customers and public interests against power asymmetries and excessive dependence from private nonbank entities. In the South and less developed countries, fintech-driven governance more fundamentally changes economic and social behaviours. Fintech businesses, predominantly from the North, are integrated into government policies against poverty, and in the development policies of international organizations (Arner *et al*., 2020). It is still inconclusive and supported by limited research whether financial inclusion through fintech alleviates poverty and ensures sustainable development. Furthermore, in less developed countries, the dark side of fintech-driven governance could be more pronounced in power asymmetries, dependence, resource extraction, capitalization on personal data, and reaffirming inequalities (Campbell-Verduyn *et al*.; 2017; Langevin, 2019). A unique case is China, which developed one of the two largest fintech sectors in the world, avoiding dependence on the North in this area (Kong & Loubere, 2021). Following technological and market breakthrough, policies for wealth and sustainable development in less developed countries need to recognize a more place-based and evolutionary approach regarding consumer behaviours and services upgrade to mitigate the negative consequences referred to. *These observations are in compliance with Proposition 2*, which assumes the explanatory power of the spatial context with respect to the type and depth of fintech-driven transformative processes and ambiguous socio-economic outcomes.

Our findings can also be discussed in theoretical terms. Most of the literature is limited to the impact of fintech on operational efficiency and market expansion in banking (Arslanian & Fischer, 2019; Nicoletti, 2017). Unlike this predominant stream, our research focused on early and scarce literature that introduces governance in spatial contexts as an interim outcome and mediator of the relationships between fintech and socio-economic outcomes (Coe, 2021; Gereffi, 2018). When spatial governance is introduced as a mediator, reasoning expands from technology and efficiency to power relations, competition and dominance, access to resources, and development possibilities for individuals, societies, and territories. The governance approach improves a broader understanding of the effects of fintech transformation in banking. Consequently, the reviewed literature proves the relevance of GPN and GVC logics that assume technological changes that impact governance and raise socio-economic consequences. *These findings support Proposition 1 that assumes the mediating role of governance*

when studying socio-economic consequences of fintech. We emphasize the logics, since these approaches represent a way of reasoning rather than are directly quoted. This calls for more studies that explain bank transformation from the angle of GPN and GVC governance.

Moreover, in compliance with Proposition 3, our research revealed a coevolutionary perspective on digital changes in banking. These transformations are path-dependent, dynamic, and interactive, i.e., mutual influences take place among banks, fintech in the long run, and in spatial contexts (Gong & Hassink, 2019; Gong & Hassink, 2020). The territorial context and history explain the coexistence of varied governance solutions and outcomes (Martin & Sunley, 2015). Besides the substantial dynamics of governance discussed above, the reviewed literature also reflects the intellectual efforts and theoretical evolution from explaining transformations through established modes (market, network, firm, public or private governance) to conceptualizations of new modes (fintech-specific governance, GFNs, and ecosystems). *In response to RQ3 regarding the relationship among fintech mechanisms, governance, and socio-economic effects*, our research supported the role of governance as a mediator between fintech and the referred effects. It also evidenced the feedback relationships among the studied constructs and their dependence on spatial contexts.

CONCLUSIONS

Contribution

This research advances the knowledge of the transformation of industrial governance (Coe, 2021; Gereffi *et al*. 2005; Gereffi, 2018; Brun *et al*., 2019). In particular, it systemizes the fintech-driven dynamics and outcomes of the governance in the under-researched banking industry. The value of the findings is based on profiling the variegated structures and socio-economic outcomes and explaining this variety by contextual differences. To the best of our knowledge, the systematic review is unique in this research area, thus enhancing knowledge accumulation.

Theoretical and methodological contributions comprise the elaboration and corroboration of a research framework of GVC and GPN governance augmented by a co-evolutionary perspective. This research model proved valuable in the identification and explanation of change and variety in fintech-driven governance (Coe & Yeung, 2019; Ponte & Sturgeon, 2014). The framework recognized the causal relationships between fintech, governance, and socio-economic outcomes in geographical context (Gong & Hassink, 2020; Chen & Hassink, 2020). Furthermore, the framework treated governance as a mediator of fintech impact on banking (Coe, 2021; Gereffi *et al*., 2005; Gereffi, 2018; Brun *et al.*, 2019). Instead of seeing the transformation in banking as a unidirectional influence of fintech, it acknowledged the interactions and mutuality between incumbent banks and new entrants (Gong & Hassink, 2019). Furthermore, the framework recognized the geographic context as an explanation of the varied governance and its outcomes for societies and territories (Gong & Hassink, 2020; Chen & Hassink, 2020). The research framework and the findings reported above should be relevant for further empirical studies of context-sensitive industrial transformations.

This study also informs policies seeking financial inclusion for cohesive and sustainable development (Chatterjee, 2020; Frost, 2021; Lai & Samers, 2021; Mehrotra, 2019). The findings identify causal relations between governance types and socio-economic outcomes, *e.g.,* balancing private and public governance and hierarchization vs heterarchization to ensure both efficiency and protection of social interests. Moreover, the findings acknowledge wider consequences of technological transformation than just efficiency gains. They point to power and wealth distribution, changes in social and economic structures, and the rights of individuals. Plausible reasons for differing outcomes from fintech transformations are heterogeneous territorial conditions, which calls for a place-based policy approach (Trippl *et al*., 2015; Ter Wal & Boschma, 2011; Fornahl & Hassink, 2017).

Limitations and Research Agenda

We focused on peer-reviewed academic literature rather than on empirical reports and evaluations to address research questions and propositions and to understand the scientific knowledge in the field (Xiao & Watson, 2019; Tranfield *et al*., 2003). The academic literature in this area is scarce and emerging in

terms of original empirical studies. Conceptual and review articles based on empirical reports and evaluations dominate and their conclusions and propositions require further empirical corroborations. This research reflects the limitations of the accumulated academic knowledge, but it brings the value of systemizing and aggregating this knowledge according to the rules of scientific validity and reliability.

We also need to acknowledge the limitations of the findings that come from the early stage of the literature and the available evidence. The existing literature on fintech-driven transformation in banking is mainly focused on legislative changes and on operational efficiency and market expansion of banks (Arslanian & Fischer, 2019; Nicoletti, 2017). Wider consequences for economic and social inclusion or exclusion and territorial development are underexplored, particularly with regard to empirical research. Moreover, both empirical research and conceptual articles in this area focus on developing countries and the Global South, while the Global North and developed countries are less discussed (Lai & Samers, 2021; Kong & Loubere, 2021).

In the area of banking governance, there is a need for comprehensive empirical verifications of the relationships between particular structures and socio-economic effects in spatial contexts, such as ecosystems and financial inclusion of the unbanked under differing external conditions (Appleyard, 2020; DawnBurton, 2020). Furthermore, it is important to reveal the mechanisms of these causal relationships, such as power relations and dominance that affect the quality of services and sustainable development, depending on the territories considered (Fornahl & Hassink, 2017). Different configurations of governance modes could also be investigated, such as the combination of dominant public or private governance with fintech-specific governance in particular locations. Finally, we need more studies investigating the future development of fintech-driven governance in banking and its consequences, such as divergence or convergence of governance in homogenous or contrasting environments (Frenken & Boschma, 2007).

In the area of socio-economic outcomes, one of the critical issues is whether financial inclusion through fintech enables poverty alleviation and territorial sustainable development. These consequences can be explained by spatial context differences and therefore need to be addressed in comparative studies (Lai & Samers, 2021; Chen & Hassink, 2020). The importance of territorial conditions in explaining the variety of governance transformations and related outcomes calls for treating the context as a study object and not only as a moderator or control variable (Gong & Hassink, 2020).

Consequently, we need comparative studies that apply clearly defined spatial units of analysis. The reviewed literature uses comparative units of the Global South and North, unspecified categories of developed and developing economies, or focuses on individual countries. The former approach might be too general and simplistic, while the latter is overly detailed to make appropriate generalizations; our research necessarily follows these biases. Future studies might direct the focus on comparisons between clearly defined contexts. These can be either contrasting contexts, *e.g.,* specified developed and less developed countries, or large samples of homogenous contexts, or they can match global networks of individual banks in different spatial conditions. It is also important to consider the digitalization of banking governance in the context of other parts of financial markets, *e.g.,* capital markets and cryptocurrencies (Arslanian & Fischer, 2019). Comparative research that is context-sensitive can better address the issue of wealth and sustainability of fintech transformation in banking.

Ultimately, the reviewed literature suffers from the ambiguities of findings on the impact of fintech on governance and socio-economic spheres (Wójcik, 2021; Wójcik & Ioannou, 2020; Wójcik, 2020). To address this ambiguity, we classified the main constructs according to spatial environments and time perspectives. In the countries of the Global North, governance dynamics and socio-economic outcomes of fintech were found to be different from those of the Global South. Moreover, the conclusions and findings were also different in earlier articles from those of more recent articles. These resolutions and interpretations proved to be consistent with the theoretical framework that emphasizes the importance of context and the evolutionary perspective (Chen & Hassink, 2022; Gong & Hassink, 2020). Consequently, the findings and interpretations supported the corroboration of the framework and its usefulness for further research.

REFERENCES

Appleyard, L. (2020). Banks and Credit. In J. Knox-Hayes & D. Wójcik (eds.), *The Routledge Handbook of Financial Geography* (pp. 379-399). New York: Routledge.

Arner, D.W., Buckley, R.P., Zetzsche, D.A. & Robin, V. (2020). Sustainability, FinTech and financial inclusion. *European Business Organization Law Review,* 21, 7-35. https://doi.org/10.1007/s40804-020-00183-y

┼Arslanian, H., & Fischer, F. (2019). *The Future of Finance: The Impact of FinTech, AI, and Crypto on Financial Services*. Cham: Springer.

*Babajide, A.A., Oluwaseye, E.O., Lawal, A.I., & Isibor, A.A. (2020). Financial technology, financial inclusion and MSMEs financing in the South: West of Nigeria. *Academy of Entrepreneurship Journal, 26*(3), 1-17.

*Bernards, N. (2019). The poverty of fintech? Psychometrics, credit infrastructures, and the limits of financialization. *Review of International Political Economy, 26*(5), 815-838. https://doi.org/10.1080/09692290.2019.1597753

*Bhagat, A., & Roderick, L. (2020). Banking on refugees: Racialized expropriation in the fintech era. *Environment and Planning A: Economy and Space, 52*(8), 1498-1515. https://doi.org/10.1177/0308518X20904070

*Boamah, E.F., & Murshid, N.S. (2019). "Techno-market fix"? Decoding wealth through mobile money in the global South. *Geoforum,* 106, 253-262. https://doi.org/10.1016/j.geoforum.2019.08.012

*Bömer, M., & Maxin, H. (2018). Why fintechs cooperate with banks—evidence from Germany. *Zeitschrift für die gesamte Versicherungswissenschaft, 107*(4), 359-386. https://doi.org/10.1007/s12297-018-0421-6

*Boot, A., Hoffmann, P., Laeven, L., & Ratnovski, L. (2021). Fintech: what's old, what's new? *Journal of Financial Stability, 53*(100836), 1-13. https://doi.org/10.1016/j.jfs.2020.100836

*Boot, A.W. (2017). The Future of Banking: From Scale & Scope Economies to Fintech 29. *European Economy,* 2, 77-95. Retrieved from http://usfl-new.wp.hum.uu.nl/wp-content/uploads/sites/232/2015/09/Boot-The-Future-of-Banking-European-Economy-2017.pdf, October 9, 2021.

Breslin, D., & Gatrell, C. (2020). Theorizing through literature reviews: The miner-prospector continuum. *Organizational Research Methods*, 1-29. https://doi.10.1177/1094428120943288.

*Brooks, S. (2021). Configuring the digital farmer: A nudge world in the making? *Economy and Society, 50*(3), 374-396. https://doi.org/10.1080/03085147.2021.1876984

*Brown, E., & Piroska, D. (2021). Governing Fintech and Fintech as Governance: The Regulatory Sandbox, Riskwashing, and Disruptive Social Classification. *New Political Economy*, *27*(1), 19-32. https://doi.org/10.1080/13563467.2021.1910645

Brun, L., Gereffi, G., & Zhan, J. (2019). The "lightness" of Industry 4.0 lead firms: implications for global value chains. In P. Bianchi, C. R. Durán, & S. Labory (Eds.), *Transforming Industrial Policy for the Digital Age* (pp. 37-67). Cheltenham: Edward Elgar Publishing.

*Campbell-Verduyn, M., Goguen, M., & Porter, T. (2019). Finding fault lines in long chains of financial information. *Review of international political economy*, *26*(5), 911-937. https://doi.org/10.1080/09692290.2019.1616595

*Campbell-Verduyn, M., Goguen, M., & Porter, T. (2017). Big Data and algorithmic governance: the case of financial practices. *New Political Economy, 22*(2), 219-236. https://doi.org/10.1080/13563467.2016.1216533

┼Cassis, Y., & Wójcik, D. (Eds.). (2018). *International financial centres after the Global Financial Crisis and Brexit*. Oxford: Oxford University Press.

Chatterjee, A. (2020). Financial inclusion, information and communication technology diffusion, and economic growth: a panel data analysis. *Information Technology for Development, 26*(3), 607-635. https://doi.org/10.1080/02681102.2020.1734770

*Chen, Y., & Hassink, R. (2022). The geography of the emergence of online peer-to-peer lending platforms in China: an evolutionary economic geography perspective. *International Journal of Urban Sciences*, 26(2), 351-371. https://doi.org/10.1080/12265934.2021.1879664

Chen, Y., & Hassink, R. (2020). Multi-scalar knowledge bases for new regional industrial path development: toward a typology. *European Planning Studies, 28*(12), 2489-2507.

*Chen, Z., Li, Y., Wu, Y., & Luo, J. (2017). The transition from traditional banking to mobile internet finance: an organizational innovation perspective - a comparative study of Citibank and ICBC. *Financial Innovation, 3*(1), 1-16. https://doi.org/10.1186/s40854-017-0062-0

*Chiu, I. H.Y. (2017). A new era in fintech payment innovations? A perspective from the institutions and regulation of payment systems. *Law, Innovation and Technology, 9*(2), 190-234. https://doi.org/10.1080/17579961.2017.1377912

*Cicchiello, A. F. (2020). Harmonizing the crowdfunding regulation in Europe: need, challenges, and risks. *Journal of Small Business & Entrepreneurship, 32*(6), 585-606. https://doi.org/10.1080/08276331.2019.1603945

*Clarke, C. (2019). Platform lending and the politics of financial infrastructures. *Review of International Political Economy, 26*(5), 863-885. https://doi.org/10.1080/09692290.2019.1616598

Coe, N.M. (2021). *Advanced Introduction to Global Production Networks*. Cheltenham: Edward Elgar Publishing.

Coe, N.M., Lai, K.P.Y., & Wójcik, D. (2014). Integrating Finance into Global Production Networks. *Regional Studies, 48*(5), 761-777. https://doi.org/10.1080/00343404.2014.886772

Coe, N.M., & Yeung, H.W. (2019). Global production networks: mapping recent conceptual developments. *Journal of Economic Geography, 19*(4), 775-801. https://doi.org/10.1093/jeg/lbz018

*Coetzee, J. (2018). Strategic implications of Fintech on South African retail banks. *South African Journal of Economic and Management Sciences, 21*(1), 1-11. Retrieved from https://hdl.handle.net/10520/EJC-1212b529f0 on November 14, 2021.

*Coffie, C.P.K., Zhao, H., & Adjei Mensah, I. (2020). Panel Econometric Analysis on Mobile Payment Transactions and Traditional Banks Effort toward Financial Accessibility in Sub-Sahara Africa. *Sustainability, 12*(3), 895. https://doi.org/10.3390/su12030895

Colombo, M.G., Dagnino, G.B., Lehmann, E.E., & Salmador, M. (2019). The governance of entrepreneurial ecosystems. *Small Business Economics, 52*(2), 419-428. https://doi.org/10.1007/s11187-017-9952-9

*DawnBurton (2020). Digital Debt Collection and Ecologies of Consumer Overindebtedness. *Economic Geography, 96*(3), 244-265. https://doi.org/10.1080/00130095.2020.1762486

*de Goede, M. (2020). Finance/security infrastructures. *Review of International Political Economy,* 28(2), 351-368. https://doi.org/10.1080/09692290.2020.1830832

De Marchi, V., Giuliani, E., & Rabellotti, R. (2018). Do global value chains offer developing countries learning and innovation opportunities? *The European Journal of Development Research, 30*(3), 389-407.

https://doi.org/10.1057/s41287-017-0126-z

*Demir, A., Pesqué-Cela, V., Altunbaş, Y., & Murinde, V. (2020). Fintech, financial inclusion and income inequality: a quantile regression approach. *The European Journal of Finance, 28*(1), 86-107. https://doi.org/10.1080/1351847X.2020.1772335

*Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2020). The Global Findex Database 2017: Measuring financial inclusion and opportunities to expand access to and use of financial services. *The World Bank Economic Review, 34*(Supplement_1), S2-S8. https://doi.org/10.1093/wber/lhz013

*Döderlein, D. (2018). What is the optimal mix between banks and FinTechs in the payments architecture? *Journal of Payments Strategy & Systems, 12*(2), 122-129.

*Fenwick, M., & Vermeulen, E.P.M. (2020). Banking and Regulatory Responses to FinTech Revisited: Building the Sustainable Financial Service "Ecosystems" of Tomorrow. *Singapore Journal of Legal Studies,* (March), 165-189. Retrieved from https://search.informit.org/doi/10.3316/informit.239359167409289, September 21, 2021.

Fornahl, D., & Hassink, R. (Eds.). (2017). *The life cycle of clusters: A policy perspective*. Cheltenham: Edward Elgar Publishing.

Frenken, K., & Boschma, R.A. (2007). A theoretical framework for evolutionary economic geography: industrial dynamics and urban growth as a branching process. *Journal of Economic Geography, 7*(5), 635-649. https://doi.org/10.1093/jeg/lbm018

*Friedline, T., Naraharisetti, S., & Weaver, A. (2020). Digital redlining: Poor rural communities' access to fintech and implications for financial inclusion. *Journal of Poverty, 24*(5-6), 517-541. https://doi.org/10.1080/10875549.2019.1695162

┼Frost, J. (2021). The Economic Forces Driving FinTech Adoption across Countries. *De Nederlandsche Bank Working Paper,* 663, 1-20. http://dx.doi.org/10.2139/ssrn.3515326

Fu, J., & Mishra, M. (2020). The Global Impact of COVID-19 on Fintech Adoption. *Swiss Finance Institute Research Paper*, 20-38. https://doi.org/10.5167/uzh-187776

Gancarczyk, M., & Ujwary-Gil, A. (eds.) (2021). Exploring the Link Between Entrepreneurial Capabilities, Cognition, and Behaviors. *Journal of Entrepreneurship, Management and Innovation, 17*(1). Nowy Targ: Cognitione Foundation for Dissemination of Knowledge and Science. https://doi.org/10.7341/2021710

Gereffi, G. (2018). *Global value chains and development: Redefining the contours of 21st century capitalism*. Cambridge: Cambridge University Press.

Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy, 12*(1), 78-104. https://doi.org/10.1080/09692290500049805

Gereffi, G., & Lee, J. (2016). Economic and social upgrading in global value chains and industrial clusters: Why governance matters. *Journal of Business Ethics, 133*(1), 25-38. https://doi.org/10.1007/s10551-014-2373-7

*Glavee-Geo, R., Shaikh, A.A., Karjaluoto, H., & Hinson, R.E. (2019). Drivers and outcomes of consumer engagement: Insights from mobile money usage in Ghana. *International Journal of Bank Marketing, 38*(1), 1-20. https://doi.org/10.1108/IJBM-01-2019-0007

*Gomber, P., Koch, J. A., & Siering, M. (2017). Digital Finance and FinTech: current research and future research directions. *Journal of Business Economics, 87*(5), 537-580. https://doi.org/10.1007/s11573-017-0852-x

Gong, H., & Hassink, R. (2020). Context sensitivity and economic-geographic (re) theorising. *Cambridge Journal of Regions, Economy and Society, 13*(3), 475-490. https://doi.org/10.1093/cjres/rsaa021

Gong, H., & Hassink, R. (2019). Co-evolution in contemporary economic geography: Towards a theoretical framework. *Regional Studies,* 53(9), 1344-1355. https://doi.org/10.1080/00343404.2018.1494824

Gross, N. (2009). A pragmatist theory of social mechanisms. *American Sociological Review, 74*(3): 358-379. https://doi.org/10.1177/000312240907400302

*Gupta, A., & Xia, C. (2018). A paradigm shift in banking: Unfolding Asia's Fintech Adventures. In W. A. Barnett & B. S. Sergi (Eds.), *Banking and Finance Issues in Emerging Markets* (pp. 215-254). Bingley: Emerald Publishing Limited.

*Hammerschlag, Z., Bick, G., & Luiz, J.M. (2020). The internationalization of African fintech firms: marketing strategies for successful intra-Africa expansion. *International Marketing Review, 37*(2), 299-317. https://doi.org/10.1108/IMR-05-2019-0130

Hill, J. (2018). *Fintech and the remaking of financial institutions*. London: Academic Press.

*Hodson, D. (2021). The politics of FinTech: Technology, regulation, and disruption in UK and German retail banking. *Public Administration*, *99*(4), 859-872.

*Iman, N. (2018). Is mobile payment still relevant in the fintech era? *Electronic Commerce Research and Applications* 30, 72-82. https://doi.org/10.1016/j.elerap.2018.05.009

Jacobides, M.G., Cennamo, C., & Gawer, A. (2018). Towards a theory of ecosystems. *Strategic Management Journal, 39* (8), 2255-2276. https://doi.org/10.1002/smj.2904

*Jagtiani, J., & Lemieux, C. (2018). Do fintech lenders penetrate areas that are underserved by traditional banks? *Journal of Economics and Business,* 100, 43-54. https://doi.org/10.1016/j.jeconbus.2018.03.001

*Jain, S., & Gabor, D. (2020). The Rise of Digital Financialisation: The Case of India. *New Political Economy, 25*(5), 813-828. https://doi.org/10.1080/13563467.2019.1708879

Jalil, M. F., Ali, A., & Ahmed, Z. (2022), Microfinance services and SME growth in Pakistan: The mediating prespective of social and psychological capital. *Journal of Entrepreneurship, Management, and Innovation, 18*(1), 93-129. https://doi.org/10.7341/20221814

┼Jarvis, D.S.L. (2011). Race for the money: international financial centres in Asia. *Journal of International Relations and Development*, *14*(1), 60-95. https://doi.org/10.1057/jird.2010.19

*Jiao, Z., Shahid, M.S., Mirza, N., & Tan, Z. (2021). Should the fourth industrial revolution be widespread or confined geographically? A country-level analysis of fintech economies. *Technological Forecasting and Social Change* 163, 120442. https://doi.org/10.1016/j.techfore.2020.120442

*Kapron, Z. (2018). From digital payments to digital finance: How China's tech companies are redefining banking in Asia and soon Europe. *Journal of Payments Strategy & Systems, 12*(1), 68-73. Retrieved from https://www.ingentaconnect.com/content/hsp/jpss, June 15, 2021

*Kim, K. (2020). The role of mobile money in improving the financial inclusion of Nairobi's urban poor. *African Journal of Science, Technology, Innovation and Development, 12*(7), 855-865. https://doi.org/10.1080/20421338.2020.1733281

┼Kleibert, J. M. (2020). Unbundling Value Chains in Finance: Offshore Labor and the Geographies of Finance. In J. Knox-Hayes & D. Wójcik (Eds.), in: *The Routledge Handbook of Financial Geography* (pp. 421-439). New York: Routledge.

*Knaack, P., & Gruin, J. (2020). From shadow banking to digital financial inclusion: China's rise and the politics of epistemic contestation within the financial stability board. *Review of International Political Economy, 28*(6), 1582-1606. https://doi.org/10.1080/09692290.2020.1772849

*Knight, E., & Wójcik, D. (2017). Geographical linkages in the financial services industry: a dialogue with organizational studies. *Regional Studies, 51*(1), 116-127. https://doi.org/10.1080/00343404.2016.1254768

*Kong, S.T., & Loubere, N. (2021). Digitally Down to the Countryside: Fintech and Rural Development in China. *The Journal of Development Studies, 57*(10), 1739-1754. https://doi.org/10.1080/00220388.2021.1919631

Kraus, K., Kraus, N., & Shtepa, O. (2021). Synergetic effects of network interconnections in the conditions of virtual reality. *Journal of Entrepreneurship, Management, and Innovation, 17*(3), 149-188. https://doi.org/10.7341/20211735

┼Lai, K.P. (2020). FinTech: The dis/re-intermediation of finance? In J. Knox-Hayes & D. Wójcik (Eds.), The Routledge *Handbook of Financial Geography* (pp. 440-457). New York: Routledge.

┼Lai, K.P., Pan, F., Sokol, M., & Wójcik, D. (2020). New financial geographies of Asia. *Regional Studies, 54*(2), 143-148. https://doi.org/10.1080/00343404.2019.1689549

*Lai, K.P.Y., & Samers, M. (2021). Towards an economic geography of FinTech. *Progress in Human Geography, 45*(4), 720-739. https://doi.org/10.1177/0309132520938461

*Langevin, M. (2019). Big data for (not so) small loans: technological infrastructures and the massification of fringe finance. *Review of International Political Economy*, *26*(5), 790-814. https://doi.org/10.1080/09692290.2019.1616597

*Langley, P. (2016). Crowdfunding in the United Kingdom: A Cultural Economy. *Economic Geography* 92(3), 301-321. https://doi.org/10.1080/00130095.2015.1133233

*Langley, P., & Leyshon, A. (2021). The Platform Political Economy of FinTech: Reintermediation, Consolidation and Capitalisation. *New Political Economy*, 26(3), 376-388. https://doi.org/10.1080/13563467.2020.1766432

Livesey, F. (2018). Unpacking the possibilities of deglobalisation. *Cambridge Journal of Regions, Economy and Society, 11*(1), 177-187. https://doi.org/10.1093/cjres/rsx030

Łasak, P., & Gancarczyk, M. (2021). Systemizing the impact of fintechs on the efficiency and inclusive growth of banks' services. In A. Marszk & E. Lechman (eds.), *The Digitalization of Financial Markets: The Socioeconomic Impact of Financial Technologies* (pp. 123-144). London: Routledge.

Łasak, P., & Gancarczyk, M. (2022). Transforming the scope of the bank through fintechs: toward a modularized network governance. *Journal of Organizational Change Management, 35*(1), 186-208. https://doi.org/10.1108/JOCM-05-2021-0147

Łasak, P. (2022). The role of financial technoogy and entrepreneurial finance practices in funding small and medium-sized enterprises. *Journal of Entrepreneurship, Management, and Innovation, 18*(1), 7-34. https://doi.org/10.7341/20221811

Mainelli, M. (2006). Global financial centers: one, two, three... infinity? *The Journal of Risk Finance, 7*(2), 219-227. https://doi.org/10.1108/jrf.2006.29407baf.002

Martin, R., & Sunley, P. (2015). Towards a developmental turn in evolutionary economic geography? *Regional Studies, 49*(5), 712-732. https://doi.org/10.1080/00343404.2014.899431

Martin, R., & Sunley, P. (2006). Path dependence and regional economic evolution. *Journal of Economic Geography, 6*(4), 395-437. https://doi.org/10.1093/jeg/lbl012

*Maskara, P.K., Kuvvet, E., & Chen, G. (2021). The role of P2P platforms in enhancing financial inclusion in the United States: An analysis of peer-to-peer lending across the rural–urban divide. *Financial Management, 50*(3), 747-774. https://doi.org/10.1111/fima.12341

*Mehrotra, A. (2019). Artificial Intelligence in Financial Services – Need to Blend Automation with Human Touch. *2019 International Conference on Automation, Computational and Technology Management (ICACTM)* (pp. 342-347). IEEE.

┼Nicoletti, B. (2017). *Future of FinTech. Integrating Finance and Technology in Financial Services*. Cham: Palgrave Macmillan.

*Okoli, T.T., & Tewari, D.D. (2020). An empirical assessment of fintechs heterogeneous transmission channels to financial development among African economies. *Cogent Economics & Finance, 8*(1), 1829273. https://doi.org/10.1080/23322039.2020.1829273

*Omarini, A.E. (2018). Fintech and the Future of the Payment Landscape: The Mobile Wallet Ecosystem - A Challenge for Retail Banks? *International Journal of Financial Research, 9*(4), 97-116. http://dx.doi.org/10.5430/ijfr.v9n4p97

┼Ozili, P.K. (2020). Financial inclusion and Fintech during COVID-19 crisis: Policy solutions. *The Company Lawyer Journal* 8., Available at: SSRN: https://ssrn.com/abstract=3585662

┼Ozili, P.K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review, 18*(4), 329-340. https://doi.org/10.1016/j.bir.2017.12.003

*Passi, L.F. (2018). An open banking ecosystem to survive the revised Payment Services Directive: Connecting international banks and FinTechs with the CBI Globe platform. *Journal of Payments Strategy & Systems,* 12(4), 335-345.

Pinkow, F. (2022). The impact of common success factors on overfunding in reward-based crowdfunding: An explorative study and avenues for future research. *Journal of Entrepreneurship, Management, and Innovation, 18*(1), 131-167. https://doi.org/10.7341/20221815

Ponte, S., Gereffi, G., & Raj-Reichert, G. (Eds.). (2019). Introduction to the handbook on global value chains. In S. Ponte, G. Gereffi, & G. Raj-Reichert, *Handbook on Global Value Chains* (pp. 1-27). Cheltenham: Edward Elgar Publishing.

Ponte, S., Sturgeon, T. (2014). Explaining governance in global value chains: A modular theory-building effort. *Review of International Political Economy, 21*(1), 195-223. https://doi.org/10.1080/09692290.2013.809596

*Popelo, O., Dubyna, M., & Kholiavko, N. (2021). World experience in the introduction of modern innovation and information technologies in the functioning of financial institutions. *Baltic Journal of Economic Studies, 7*(2), 188-199. https://doi.org/10.30525/2256-0742/2021-7-2-188-199

*Riyanto, A., Primiana, I., Yunizar, & Azis, Y. (2018). Disruptive Technology: The Phenomenon of FinTech towards Conventional Banking in Indonesia. In IOP Conference Series: Materials Science and Engineering, 407(1), 012104. https://doi.org/10.1088/1757-899X/407/1/012104

┼Salampasis, D., & Mention, A.-L. (2018). FinTech: Harnessing innovation for financial inclusion. In D. L. K. Chuen, & R. Deng (Eds.), *Handbook of Blockchain, Digital Finance, and Inclusion*, Volume 2 (pp. 451-461). London: Academic Press.

*Scardovi, C. (2017). *Digital Transformation in Financial Services*. Cham: Springer International Publishing.

*Singh, J.P. (2019). Development finance 2.0: do participation and information technologies matter? *Review of International Political Economy, 26*(5), 886-910. https://doi.org/10.1080/09692290.2019.1616600

*Son, I., & Kim, S. (2018). Mobile Payment Service and the Firm Value: Focusing on both Up- and Down-Stream Alliance. *Sustainability, 10*(7), 2583. https://doi.org/10.3390/su10072583

*Suryono, R.R., Budi, I., & Purwandari, B. (2021). Detection of fintech P2P lending issues in Indonesia. Heliyon *7*(4), e06782. https://doi.org/10.1016/j.heliyon.2021.e06782

*Tanda, A., & Schena, C.-M. (2019). *FinTech, BigTech and Banks. Digitalisation and Its Impact on Banking Business Models*. Cham: Palgrave Macmillan.

Ter Wal, A.L., & Boschma, R. (2011). Co-evolution of firms, industries and networks in space. *Regional Studies* 45(7), 919-933. https://doi.org/10.1080/00343400802662658

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, *14*(3), 207-222. https://doi.org/10.1111/1467-8551.00375

Trippl, M., Grillitsch, M., Isaksen, A., & Sinozic, T. (2015). Perspectives on cluster evolution: critical review and future research issues. *European Planning Studies, 23*(10), 2028-2044. https://doi.org/10.1080/09654313.2014.999450

*Trisnowati, Y., Muditomo, A., Manalu, E.P.S., Kesuma P., Z., Adriana, D., & Dwiyani H., R. (2020). The COVID-19 Pandemic's Impact on Indonesia's Electronic Retail Payment Transactions. In 2020 International Conference on Information Management and Technology (ICIMTech) (pp. 504-509). IEEE https://doi.org/10.1109/ICIMTech50083.2020.9211232

Villiger, J., Schweiger, S. A., & Baldauf, A. (2021). Making the Invisible Visible: Guidelines for the Coding Process in Meta-Analyses. *Organizational Research Methods*, 1-25. https://doi.org/10.1177/10944281211046312.

┼Vives, X. (2017). The impact of FinTech on banking. *European Economy,* 2, 97-105. Retrieved from https://blog.iese.edu/xvives/files/2018/02/EE_2.2017.pdf#page=99, August 12, 2021

von Briel, F., Davidsson, P., & Recker, J. (2018). Digital technologies as external enablers of new venture creation in the IT hardware sector. *Entrepreneurship Theory and Practice, 42*(1), 47-69. https://doi.org/10.1177/1042258717732779

Waliszewski, K., & Warchlewska, A. (2020). Attitudes towards artificial intelligence in the area of personal financial planning: a case study of selected countries. *Entrepreneurship and Sustainability Issues 8*(2), 399. https://doi.org/10.9770/jesi.2020.8.2(24)

*Wójcik, D. (2021). Financial Geography I: Exploring FinTech–Maps and concepts. *Progress in Human Geography, 45*(3), 566-576. https://doi.org/10.1177/0309132520952865

*Wójcik, D. (2020). Financial geography II: The impacts of FinTech–Financial sector and centres, regulation and stability, inclusion and governance. *Progress in Human Geography, 45*(4), 878-889. https://doi.org/10.1177/0309132520959825

*Wójcik, D, & Ioannou, S. (2020). COVID-19 and finance: market developments so far and potential impacts on the financial sector and centres. *Tijdschrift voor economische en sociale geografie,* 111(3), 387-400. https://doi.org/10.1111/tesg.12434

*Wonglimpiyarat, J. (2017). FinTech banking industry: a systemic approach. *Foresight, 19*(6), 590-603. https://doi.org/10.1108/FS-07-2017-0026

Xiao, Y., & Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal of Planning Education and Research, 39*(1), 93-112. https://doi.org/10.1177/0739456X17723971

┼Zachariadis, M., & Ozcan, P. (2017). The API Economy and Digital Transformation in Financial Services: The Case of Open Banking. *SWIFT Institute Working Paper No. 2016-001.* http://dx.doi.org/10.2139/ssrn.2975199

*Zetzsche, Dirk A., Arner, D.W., & Buckley, R.P. (2020). Decentralized Finance. *Journal of Financial Regulation*, *6*(2), 172-203. https://doi.org/10.1093/jfr/fjaa010

*Zhang-Zhang, Y., Rohlfer, S., & Rajasekera, J. (2020). An Eco-Systematic View of Cross-Sector Fintech: The Case of Alibaba and Tencent. *Sustainability, 12*(21), 8907. https://doi.org/10.3390/su12218907

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Conflict of Interest

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