



Financial geography II: The impacts of FinTech – Financial sector and centres, regulation and stability, inclusion and governance

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Dariusz Wójcik 

University of Oxford, UK

Abstract

In this report, I review interdisciplinary research on the actual and potential consequences of FinTech, with emphasis on ideas from and for geographers, and three areas: financial sector and centres, financial regulation and stability, and financial inclusion and governance. I show that the consequences of FinTech are full of controversies, which are part of broader, long-standing debates on the role of finance in economy and society, and need to be approached from geographical perspectives. The intense fusion of fin and tech, arguably accelerated by the COVID-19 pandemic, complicates and elevates these controversies to a new level.

Keywords

financial geography, financial governance, financial inclusion, financial regulation, financial stability, financial technology, FinTech

I Introduction

In my first report, I defined FinTech as a set of innovations and an economic sector that focus on the application of recently developed digital technologies to financial services, which arose around the time of the global financial crisis of 2007–8 (Wójcik, 2020). Given the young age of FinTech, and that it is yet to be tested over a full economic cycle (Claessens et al., 2018), it is difficult to assess the impacts on its users, not to mention the broader economy and society. Nevertheless, over the last five years, a rich interdisciplinary literature has emerged, tackling the actual and potential consequences of FinTech. In this report, I review this body of research, with emphasis on ideas from and for geographers. I begin with impacts on the

financial sector and centres, discuss financial regulation and stability, and consider financial inclusion and governance. In conclusions, I reflect on FinTech in the context of COVID-19, and future research directions.

II Financial sector and centres

Prophecies of FinTech causing disruption and disintermediation of the financial sector hark back to its story of creation, including smartphone-borne M-Pesa and cryptography-

Corresponding author:

Dariusz Wójcik, University of Oxford, School of Geography and the Environment, South Parks Road, Oxford OX1 3QY, UK.

Email: dariusz.wojcik@spc.ox.ac.uk

driven Bitcoin (Ndung'u, 2018; Zook and Blankenship, 2018), designed to bypass and contest traditional financial intermediaries. The leader of KPMG FinTech practice quotes a bank CEO saying: 'We need to think and act like a 200-year-old start-up company [...] If we don't innovate we're toast' (Pollari, 2016: 15). Astonishingly, the cost of financial intermediation, measured as the ratio of intermediaries' income to the value of intermediated assets in the USA, has remained around 2 per cent for the past 130 years (Philippon, 2015). A major cost-cutting disruption seems overdue (Das, 2019).

The disruptive nature of FinTech should not be exaggerated. Banks have responded to and participated in FinTech, developing digital banking, acquiring and incubating FinTech start-ups through financial and other support, and collaborating with them through alliances and joint ventures (Lai, 2020; Drasch et al., 2018). The internal and external reorganization of banks involved is challenging, requiring more focus on customer rather than process, and a cooperative and agile rather than hierarchical structure (Alt et al., 2018; Chen et al., 2017). Fin and tech cultures clash in the process (Millian et al., 2019), generating demand for business consulting services (Cap Gemini and EFMA, 2020). Hornuf et al. (2020) show that while collaboration between banks and FinTechs is common in both capital market- and bank-based financial systems, it is more common for larger banks. In a blow to the heralds of disruption and disintermediation, Chen et al. (2019), analysing stock price reactions to FinTech innovations in the USA, find a positive impact on the market value of the financial sector as whole. Banks that spend most on R&D benefit most. Thus, on balance, investors and traders seem to believe that FinTech enlarges the pool of potential profits in the financial sector.

Geographers have challenged the notion of disintermediation before. Recall claims that efficient capital markets, armed with technology, were replacing banks (Mishkin, 2007).

As geographers demonstrated, in reality this was a process of re-intermediation (French and Leyshon, 2004), driven by securitization and investment banking, leading to toxic innovation and excessive power of these institutions, which manifested themselves in the global financial crisis (Wójcik, 2012). In this sceptical tradition, Lai (2020) reflects on the advantages of banks over FinTech start-ups, including customer base, brand name, and economies of scale, illustrating them with the examples of the UK- and Singapore-based banks (RBS and DBS). Hendrikse, Bassens and van Meeteren (2018) pose 'the Appleization of finance thesis', backed up with the case study of Brussels, as 'the strategy of transforming legacy systems and recombining them with platform elements in a quest to lock-in customers, developer, and the state' (p. 10). Langley and Leyshon (2020) argue that financial platforms, whether built by banks or not, are intermediaries themselves. Even Bitcoin needs intermediaries, such as exchanges (Cai, 2018; Zook and Blankenship, 2018).

More spatially-sensitive research is needed on how FinTech re-intermediates finance. FinTech offers potential for unbundling value chains in financial services, with different functions performed by different apps, firms, and from different locations (Carney, 2017). One scenario is that bank functions will be reduced to deposit-taking, with FinTech firms taking over the front and back office (Sangwan et al., 2020). Unbundling, however, may be accompanied by re-bundling, driven by economies of scale, scope, and networks. Peer-to-peer FinTech lenders and exclusively online banks (aka neobanks) tend to specialize in small loans (Tang, 2019), and need scale to compete with incumbents (CCAF, 2018). Navaretti et al. (2017: 11) argue that 'the real casualties will not be banking activities, but mostly small banks and banking jobs'. Frey and Osborne (2017) predicted that 23 per cent of financial analyst and 58 per cent of financial advisor jobs in the USA would be lost in the near future. The

argument that FinTech will accelerate the demise of small (often local) banks cannot be taken for granted. While they have smaller financial resources, they may be more flexible than big banks, combining local relationships with outsourced FinTech services. Of course, answers to questions on disruption and re-intermediation depend crucially on regulation (Vives, 2019; Ferrarini, 2017).

Exciting opportunities await those exploring the impacts of FinTech on financial services beyond banking. FinTech challenge incumbent firms in payment, credit card, clearing and settlement services, but thus far with more collaboration than disruption (Bassens, 2020). Haberly et al. (2019) demonstrate that digital asset management platforms have lowered costs of investment services, but increased both firm-level and geographical concentration, with incumbents like Blackrock and Vanguard in the lead. In the real estate sector, geographers have studied property technology (PropTech) and proposed novel concepts, such as platform real estate (Rogers, 2016, 2017; Shaw, 2018), and automated landlord (Fields, 2020). Bieri (2015) highlights the dangers of real estate crowdfunding. For insurance technology (InsurTech), I could not find a single publication related to geography. Corporate law, accountancy, and business consulting firms (with the Big Four playing a prominent part), are involved in FinTech as advisors to other firms but also collaborators in incubators and accelerators (Hendrikse et al., 2020). FinTech founders often come from consulting firms (Zook and Grote, 2020). There are more direct impacts too. Smart contracts (an application of blockchain), for example, can accelerate automation in law and accountancy (Lansiti and Lakhani, 2017; Xu et al., 2019).

Impact of FinTech on financial centres is a corollary of its impact on intermediation. Dis-intermediation, taken to an extreme, means that financial centres, understood as locations of intermediaries, become history. Re-intermediation

sustains financial centres, provided intermediaries continue to co-locate. The question is where and how. Emerging studies indicate that FinTech bolsters established financial centres (Lai and Samers, 2020; Lai, 2020; Hendrikse et al., 2020) and positions them as beneficiaries in the network of FinTech-intermediated financial flows (Langley and Leyshon, 2017). Simultaneously, new FinTech centres arise in cities with a strong technology sector (Findexable, 2020; Wójcik, 2020; Cojoianu et al., 2020). Haberly et al. (2019) offer a new typology of financial centres, with emphasis on technical and virtual geographies of finance, sustaining financial back office and data centres. Offshore jurisdictions, driven by legal geographies of finance (Potts, 2020), can also flourish under FinTech, as its digital nature facilitates regulatory arbitrage (Zook and Grote, 2020; Bassens, 2020). FinTech's demand for technology – in addition to finance-related skills and resources – creates room for financial city-regions that can satisfy such demand. Take for example the San Francisco Bay Area, with San Francisco's FIRE, and Silicon Valley's FinTech hub, or the Pearl River Delta, with Hong Kong and Shenzhen in equivalent roles (CCAF, 2018).

III Financial regulation and stability

Regulation contributed to the emergence of FinTech and continues to affect its geography and implications. The post-2008 financial regulation increased costs in the financial sector and opportunities for innovations outside the sector (Arner et al., 2016). Regulation is controversial as it always involves trade-offs. Striking a balance between encouraging innovation and maintaining market integrity, and achieving that with simple and clear rules, is inherently difficult. FinTech aggravates the dilemma (or trilemma) of financial regulation, as it blurs boundaries around the financial sector, introduces new products, and processes huge amounts of information (Brummer and Yadav,

2019). Challenges to market integrity are manifold. Hundreds of unregulated peer-to-peer lending platforms in China turned out to be digitally-enhanced Ponzi schemes (Buchanan and Cao, 2018). Most initial coin offerings do not protect investors against self-dealing and abuse by issuers (Zook and Grote, 2020; Cohn et al., 2019). Foley et al. (2019) find that nearly half of Bitcoin transactions involve an illegal activity. Anonymity of crypto-assets, such as Bitcoin, untethers finance even further from the real economy than complex derivatives did (Omarova, 2019), which can fuel financial speculation on an unprecedented scale. Economies of scale, scope, and networks present in FinTech can lead to oligopolistic and monopolistic market structures, creating too-big-to-fail and too-interconnected-to-fail institutions (Buckley et al., 2019a; Magnuson, 2018). In tackling such issues, regulators influence relationships between incumbents and challengers (Zalan and Toufaily, 2017). The main areas of contention to watch are deposit-taking, deposit insurance, and access to central bank liquidity (Hendrikse et al., 2018).

Regulation of FinTech is nascent, variegated, and experimental (Andresen, 2017), and its emerging geography is fascinating. Peer-to-peer lending, for instance, is regulated in only 22 per cent of jurisdictions worldwide, and prohibited in some countries, including Colombia and Morocco (World Bank and CCAF, 2019). Regulation is more prevalent in developed countries, where it often relies on industry experts and academics, while in developing countries it is shaped around the objective of increasing financial inclusion and involves international organizations like the World Bank (WB and CCAF, 2019). The first regulatory sandbox for FinTech firms ‘to test innovation in the market with actual customers under strict conditions and monitoring of the supervisory authority’ was created in the UK in 2016 (Buchanan and Cao, 2018: 44). Heralded as a success, the sandbox approach spread to many

countries, from Australia and Canada, through Hong Kong, Singapore, Switzerland, the Netherlands to Bahrain, Brunei, Mauritius, Indonesia and Malaysia (Allen, 2019). The EU regulators, in turn, have pioneered open banking, which ‘involves sharing customers’ data with third parties who can then use it to build or recommend better suited financial products and services’ (Buchanan and Cao, 2018: 45), a model that quickly spread to Australia (Buckley et al., 2019b). In China, tech giants like Alibaba have gradually gained regulatory approvals to provide a widening range of financial services (Lu, 2018; Weihuan et al., 2015). FinTech regulation in the USA is arguably slowed down by the fragmentation of financial regulation across many agencies (Van Loo, 2018).

While regulation is being applied to FinTech, technology is being applied to regulation through RegTech, both by the regulated and regulators (Sangwan et al., 2020). Defined as ‘the use of technology, particularly information technology, in the context of regulatory monitoring, reporting and compliance’ (Arner et al., 2017: 373), RegTech can apply to any regulation, not necessarily financial, and so it overlaps with FinTech rather than being its subset. Nevertheless, the overlap is large, and the post-2008 financial regulation along with FinTech innovation were instrumental in the rise of RegTech (Arner et al., 2017). CCAF and EY (2019) survey the ‘global RegTech ecosystem’ (p. 7), with highly internationalized firms, and the UK as the leading headquarter location, followed by the USA, Luxembourg, Switzerland, Ireland, Australia and Singapore. To date, RegTech has focused on efficient reporting and compliance by big banks, using cloud, machine learning, and data analytics (CCAF and EY, 2019). In the future, its remit should broaden and deepen through the use of technologies like voice recognition, distributed ledger technology, GIS, and artificial intelligence (AI), used to track and map transactions. The Chief Economist at the Bank of England confessed: ‘I have a dream.

[...] It involves a Star Trek chair and a bank of monitors. It would involve tracking the global flow of funds in close to real time [...]. Its centerpiece would be a global map of financial flows, charting spill-overs and correlations' (Haldane, 2014). Many geographers would like to sit in that chair. Some would say that Blackrock's system Aladdin, used to manage over \$20trn of assets globally, is close to a real-world version of this dream (Haberly et al., 2019).

As the global financial crisis demonstrated, things can go wrong when physics PhDs and bankers get together (Campbell-Verduyn et al., 2017). Arner et al. (2016) argued for more experimentation and innovation, before international regulatory harmonization. The Secretary of the Financial Stability Board considered FinTech's size and its use of financial leverage too small to pose a systemic threat (Andresen, 2017). The Bank of England Governor was optimistic too, claiming that FinTech can make the global financial system more resilient with more diversity, redundancy and depth, while he recognized such challenges as increased interconnectedness and complexity, greater herding and procyclicality, and cybersecurity (Carney, 2017). These concerns are reflected in the Bali FinTech Agenda approved by the IMF and the World Bank (IMF, 2019). Having a global financial oversight, like that dreamed up by Haldane, necessitates more international cooperation. Buckley et al. (2019a) call for a depoliticization of FinTech regulation and cybersecurity in particular. But as geographers have shown, finance is always political, and no amount of virtualizing and digitizing can change that (e.g. Christophers, 2013; Wójcik et al., 2017; Muellerleile, 2019). As such, unless Haldane's dream comes true, FinTech can tip the private-public balance in finance further towards the private, by increasing the size, speed, and complexity of financial markets (Omarova, 2019).

IV Financial inclusion and governance

While international FinTech regulation is developing very slowly, international organizations, led by G20 and the World Bank, have been quick to embrace FinTech as part of the financial inclusion agenda. Data on inclusion is collected in the Global Findex database (Demirguüç-Kunt et al., 2020), with countries committing to measurable targets based on the Maya Declaration, possibly with more zeal than they commit to CO₂ emission reductions (AFI, 2018). Between 2011 and 2017 the percentage of adults globally with an account at a financial institution or a mobile money provider rose from 51 per cent to 69 per cent, with fastest growth in sub-Saharan Africa (AFI, 2018). Evidence is emerging on how FinTech makes credit more accessible. In the USA, FinTech lending has expanded fast in areas underserved by incumbent banks, i.e. with less bank competition and more minority residents (Jagtiani and Lemieux, 2018; Buchak et al., 2018; Fuster et al., 2019). According to Bartlett et al. (2019), FinTechs do not discriminate against ethnic minorities in mortgage loan approval in the USA and discriminate less than face-to-face lenders in terms of interest rates. FinTech is shown to improve access to credit in China (Hau et al., 2019), including rural areas (Ding et al., 2018). An Iceland-based study shows that Millennials and Generation X users of FinTech benefit, Baby Boomers neither gain nor lose, and economic benefits are larger for women than men (Carlin et al., 2017). In what is probably the most publicized article on the topic, Suri and Jack (2016) estimate that M-Pesa lifted 194,000 people in Kenya out of poverty.

There are vigorous critiques of the financial inclusion agenda, and the role of FinTech in it. Bateman et al. (2019) stress methodological shortcomings of Suri and Jack's estimates. Buchanan and Cao (2018) suggest that a move to a cashless society, if too fast, can exclude and

discriminate against those who most relied on cash. Panos and Wilson (2020) warn that FinTech amplifies the impact of both good and bad decisions, and hence financial inclusion needs to be considered in conjunction with financial literacy. FinTech can be theorized as a technomarket fix (Boamah and Murshid, 2019) and contributor to rentier capitalism (Sadowski, 2020), increasing dependence on debt (Clarke, 2019). Bernards (2019a, 2019b) calls FinTech a ‘turn to technology’ in the latest stage of neoliberalism. Gabor and Brooks (2017) propose the term ‘FinTech-philanthropy-development complex’ to analyse financial(ized) inclusion. Jain and Gabor (2020) consider FinTech a part of digital financialization ‘undergirded by an infrastructure that harvests citizens’ data, which companies can monetise and governments can use for political surveillance’ (p. 1), thus contributing to ‘data colonialism’. Credit rating of individuals linked to their social media activity, for example, forces people to use social media in particular ways, and excludes those who avoid them (Gaughan, 2017). Geographers contribute to research mapping new patterns of inclusion and exclusion (Lai and Samers, 2020), in both developing (Bhagat and Roderick, 2020) and developed countries (Anderson et al., 2020). As the debate on financial inclusion ultimately hinges on the views on the relationship between finance and development, more geographical research is necessary on the finance, growth and inequality nexus at all scales and in various contexts to overcome the methodological nationalism of the economic literature on the topic (Ioannou and Wójcik, 2020).

Augmenting finance with technology and vice versa, FinTech is a powerful tool, and whoever controls it, if anyone does, can control society. A techno-utopian vision of society without a central power, empowering individual freedom, clashes here with a dystopian vision of surveillance by the state and corporations (Zook and Grote, 2020); decentralization with

centralization of power (Knight and Wójcik, 2020); a vision of sharing society with capitalism on steroids (Campbell-Verduyn, 2017). Some argue that FinTech can be harnessed for sustainability, by facilitating green financing (Hinson et al., 2019; Thompson, 2017) or environmental accounting and disclosure (Arner et al., 2020b; Das, 2019). In this spirit the UN created a task force for digital financing. Geographical accounts can enrich the debate, empirically and theoretically. Zook and Blankenship (2018) demonstrate the failure of Bitcoin to live up to the expectations of techno-libertarians. Gruin (2019) shows how algorithmic governance takes root in China, while Jain and Gabor (2020) discuss the digital identity project in India. Using Grabher and König (2020) for inspiration, we can see the apparent contradiction between the promise of FinTech as disrupting the financial sector, democratizing finance, and promoting financial inclusion on one hand and the view of FinTech as supercharged finance on the other, from the perspective of a Polanyian double-movement, as an interplay of the forces of marketization versus those embedding FinTech into the regulatory framework of society.

V Conclusion

This report ends my sequel on FinTech. My goal was to introduce readers to exciting interdisciplinary scholarship on the topic, highlighting geographical ideas and contributions. Interdisciplinarity is key, inviting collaborations within and beyond geography. FinTech is not just about code, numbers, and money. It is also about text and images. Alternative ratings, for example, use AI to analyse text concerning corporate activities available on the internet (In et al., 2019). FinTech offers potential for collaboration across human, environmental, and physical geography. Satellites and drones can produce geospatial data, which can be processed using GIS and AI alongside other

information, allowing better-informed asset management decisions, including those that serve sustainable finance (Caldecott, 2019). Fintech is a topic ripe for the study of geopolitics, e.g. the USA-China relations or its role facilitating the Belt and Road Initiative (Lee et al., 2016), and corporate culture (the tech vs fin clash). We should study the geographies of FinTech knowledge production (Das, 2019), including financial education and the university-FinTech nexus. Blockchain, possibly the hottest FinTech topic in the long run (Muelerleile, 2019; Fernandez-Vazquez et al., 2019), is considered a foundational or system innovation, since the automation of transactions and their recording enables entirely new products and services (e.g. smart contracts), more customer-to-customer than business-to-customer processes, more decentralized organizational forms, new (more customer-data driven) business models (Lansiti and Lakhani, 2017; Puschmann, 2017), and new urban development models (e.g. smart cities; see Sun et al., 2016). The impact of blockchain on the economic landscape is a key question facing research, with major implications for sustainable development.

The COVID-19 pandemic has pushed FinTech to the front of the debates about the future of the world economy. Arner et al. (2020a) argue that FinTech helped to keep the financial system working, facilitating financial flows in an online mode. With FinTech facing its first ever recession, access to funding will be a challenge to FinTech start-ups and may privilege fin and tech incumbents (Wójcik and Ioannou, 2020). In 2009 technology and consumer services, combined with financial services, accounted for 36 per cent of the market value of the 20 largest corporations globally, on a par with the oil and gas industry (Sadowski, 2020). By the end of March 2020, their share doubled to 72 per cent (PwC, 2020). At the time of writing this report in July 2020, big banks are enjoying record trading profits (*The Economist*,

2020), and big tech owners have accumulated new wealth at an unprecedented pace (Rushe and Chalabi, 2020). The pandemic is likely to accelerate investment in digital infrastructure, including digital identity, which can be used by FinTech and boost its expansion (Arner et al., 2020a). Geographical research on FinTech needs to accelerate too (Knight and Wójcik, 2020).

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ORCID iD

Dariusz Wójcik  <https://orcid.org/0000-0003-2158-284X>

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