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Governing Fintech and Fintech as Governance: The Regulatory Sandbox, Riskwashing, and Disruptive Social Classification

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ABSTRACT

This article evaluates the sandbox approach as a regulatory answer to the challenges financial technology brings to finance and social relations. Taking fintech as a sociotechnological phenomenon embedded in discourses of solutionism and innovation, we show that the regulatory sandbox accepts these discourses. Instead of containing fintech, the sandbox is designed in a way that advances riskwashing of fintech even if it is disguised as risktaming. Next, we demonstrate fintech's problematic nature that regulation should control. First, we propose that through its information processing capacity, fintech accelerates the transition from bank-based to market-based finance. Second, we demonstrate that fintech as part of a fintech-financialization apparatus has catalytic and value-extracting governance effects. Third, inserting the fintech-financialization apparatus into Fourcade and Healy's argument on the social stratification effect of the data-driven economy, we argue that it also has a socially disruptive potential. We critique the regulatory sandbox for being a facilitator to this process and recommend increasing the number and power of veto players and veto points in complex regulatory regimes.


KEYWORDS

Fintech; financialization; regulation; governance; banking; sandbox

1. Introduction

The fintech phenomenon has garnered considerable attention from the popular and business press, consultancies and think tanks, and various academic communities in recent years, evoking faith and hope in the new technologies as well as apprehension of its disruptive potentials. Government agencies were also among the early respondents to the fintech challenge and invented a new regulatory tool, the regulatory sandbox, to cultivate national competitiveness opportunities and contain the risk stemming from financial technologies' widespread use. The first regulatory sandbox was set up in the UK in 2016. Since then, the Financial Conduct Authority (FCA), its host, has conducted six cohorts of small and large firms and supported them in reducing the time and cost of getting to market while learning about their technology-driven conduct themselves. Overall, the FCA's statements and the increasing interest of participating firms depict an overall success of the new regulatory tool that is now ready to be exported all over the world as a best practice through the FCA's and 11 member states' Global Financial Innovation Network (Woolard 2017).

Given its importance and innovative nature, it is surprising that the international political economy (IPE) scholarship has not paid much attention to this new regulatory innovation yet. In

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fact, IPE seems to be a bit slow to react to advancement in financial technology and provide analysis for the consequences of changes in authority, governance, and power relations between finance and regulators in general (Bernards and Campbell-Verduyn 2019). This, we believe, in the case of the regulatory sandbox, is a critical gap because our analysis reveals that sandboxes are not simply regulators of fintech but are more fundamentally its facilitator. Through riskwashing, sandboxes ease the introduction of fintech into society and finance to the extent that sandboxes themselves become a part of the fintech-financialization apparatus that intensifies fintech penetration into typically non-financialised social relations with potentially socially disruptive effects.

In this study, we follow the course set by the most recent IPE scholarship on fintech that combines insights from Social Studies of Finance with IPE approaches. Most of IPE research on fintech draws our attention to the performativity of fintech and sheds light on the consequences of fintech for the on-going process of financialization of social relations. For some researchers, who look at fintech's use for social inclusion, fintech creates a possibility for transforming households into asset classes for financial corporations, as opposed to serving households with financial transactions (Gabor and Brooks 2017). For others, big data and algorithmic solutions are capable of governing through emergent forms of governance through, with, and by algorithms (Campbell-Verduyn *et al.* 2017). Still others draw attention to the numerous ways in which shifting cultures have served to embed financialization in our daily lives (Bayliss *et al.* 2017) and the truncated and uneven effect of fintech's on economic practices (Bernards 2019).

As a contribution to this emerging field, we aim to understand how fintech is regulated. For this purpose, we look at the regulatory sandbox of the United Kingdom. The UK sandbox seems to be an ideal case studying this process. The Financial Conduct Authority (FCA) is responsible for a regulatory sandbox that serves as a blueprint for regulators worldwide. Regulators from Hong Kong to Hungary and India copy FCA's practice without reflecting on the potential problems built into its operation. For this reason, our research on the FCA should be informative for broader IPE and regulatory communities.

As a first step, we argue that fintech is embedded in a discourse on innovation and solutionism. Through these discourses, fintech as such is proposed as a technological innovation that is capable of solving problems for a large number of consumers, including those disadvantaged consumers who had little or no access to banking thus far. Relying on Morozov (2013), we point out that solutionism built into the fintech discourse frames the problems to be solved by technology independently of their social context.

In the next step, on the example of FCA of the UK, we show that fintech's discourse of innovation and solutionism is taken at face value and adopted (naively) by regulators. Moreover, looking closely at the sandbox approach, it is argued that it results in riskwashing. We define riskwashing, which we understand on analogy with greenwashing, as a financial regulatory institution's making products or processes of a company seem to involve less risk for stakeholders by engaging in activities that mimic in a superficial or narrow way genuine attempts to assess and reduce risk.

Moreover, in our analysis, the problem with the sandbox's riskwashing is not only that it creates false beliefs in sandbox-tested fintech's soundness, but more importantly that as a result of riskwashing, it amplifies a crucial feature of fintech, namely its capability, as part of a financialization apparatus, to act as a form of governance of individuals which entails forms of classification that may well be socially problematic and destabilising.

We demonstrate the fintech-financialization governance apparatus's socially problematic nature by considering its catalytic and extractive dimensions. First, we demonstrate that fintech's information processing capabilities' inclusion into the financialization process accelerates a transition from bank-based to market-based finance (Hardie *et al.* 2013). In addition, we argue that fintech also facilitates financialization's extractive potentials through the creation and exploitation of new asset classes (Birch and Muniesa 2020). Finally, we recommend a modification to Fourcade and Healy's (2017) argument for the impact of technological development on social stratification. We show that the inclusion of fintech-financialization apparatus into their analysis modifies their findings regarding the middle-

income strata. In the middle-income strata's case, we see social disruption due to the heightened degree of indecipherability of their data profiling. We conclude by highlighting issues for regulators to consider when reforming the sandbox's approach to fintech regulation.

2. Fintech's discourse of innovation and solutionism

In order to understand the regulatory sandbox approach to fintech, we focus on what Arner *et al.* (2015) call fintech 3.0. Fintech, as we are concerned with it, is that primarily post-Global Financial Crisis (GFC) development by non-bank companies, driven by mobile phones and Internet, as customer-facing infrastructure, and AI, self-adjusting algorithms, and blockchain, among other forms of data utilisation on the back end, that offer financial services directly to consumers, more-or-less independently of traditional banking institutions (Arner *et al.* 2015, Magnuson 2018). Many fintech companies offer B2B services, but our paper is concerned with fintech services intended for non-business consumers. We also do not examine here Bitcoin or other forms of cryptocurrencies.

In our understanding, fintech is a sociotechnological phenomenon, rather than just infrastructure and bits-and-bytes. To recognise fintech as such, it is vital to observe that fintech is embedded in discourses (Ertürk 2018). Most importantly, it is embedded in the discourses of innovation and what Morozov (2013) has called 'solutionism.' Regulatory sandboxes act upon fintech as embedded in these discourses.

Fintech discourse as solutionistic innovation is exemplified by its conceptualisation of 'financial inclusion.'¹ Around the world, impoverished persons have limited access to regular and affordable financial services and end up relying on payday lenders, loan sharks, and personal loans. One diagnosis of this problem is that the problem of these 'unbanked' persons can be solved by the innovations of fintech. Through innovations in digital technologies: 'mobile phones, cloud computing, big data analytics, artificial intelligence, and blockchain are making it possible for anyone to access financial products and services for the first time' (Soriano 2018, p. 60).

Through the discourse of fintech innovation's utility for social inclusion, fintech is now put forward as the means to bring about a 'solution' to the inability of the poor to access and utilise capital to lift themselves through entrepreneurship. Therefore, fintech discourse depicts fintech as a kind of innovation that is capable of ameliorating, or indeed as a solution for, the socio-economic situation of a large number of customers. Here, we want to emphasise the problem-solution framing embedded in the issue of financial inclusion.

Solutionism is a term originating in the analysis of policy and administration, as first used by Paquet (2003) and later Dobbins (2009), denoting 'high modernist' attempts by the state, national or local, to order society with simplistic policies without regard for context. For Morozov (2013) solutionism is a more general social tendency in which technological capacities and products for the basis of problem identification. Problems are construed according to their amenability to the application of technology. Such an approach is inherently distorting and, ultimately, prioritises the 'victory' of cleverness over the problem, leaving the problem essentially obscured (Morozov 2013, p. 8). Fintech's solutionism is technology-focused, driven by market-logic, and often tailored to take advantage of specific factors, such as the lack of banking options for many of the global poor. Thus, as we will emphasise, insofar as fintech's discourse of innovation and solutionism is taken at face value and adopted (naively) by regulators, it has the capacity to obscure fintech's socially disruptive potentials.

3. Sandbox approach: an uncritical implementation of fintech's own discourses

In this section, we will explain the rationale for and the main features and processes of regulatory sandboxes and show how regulatory sandboxes are essentially an implementation of the discourse of fintech companies of innovation and solution that ultimately results in the riskwashing of fintech companies (a result we detail in the next section). We look at the UK FCA, a sandbox that was first

established and is most often taken as a model in developing other sandboxes. We selected the UK FCA's as an example of the sandbox approach for the following reasons. One, setting up a regulatory sandbox is complex and costly. It requires hiring an important number of dedicated senior and junior regulators who work on an individual basis with fintech companies for an extended period (UNSGSA 2019, p. 31). Therefore, looking at the UK with substantial financial resources allows us to explore a sandbox in its full potential. Two, looking at the FCA also has the advantage of examining a dedicated financial market regulator as opposed to other cases, where financial market regulation is part of the central bank (e.g. India, Hungary) or regional regulator like the EC Expert Group on Regulatory Obstacles to Financial Innovation that may bring in other considerations for regulators that we do not wish to discuss. Finally, looking at the FCA, we analyze a sandbox that is inserted into the UK financial market, one of the world's richest fintech ecosystems. The FCA's sandbox was launched in June 2016² and there is only a limited amount of policy research available on it. The FCA's sandbox team refused to answer our detailed questions and directed us to the publicly available data on its website; therefore, we work with the FCA sandbox teams' own communication and secondary resources produced by journalists and advisory firms.

A detailed description of the functioning of the FCA is given on its website for interested firms³: The FCA's regulatory sandbox's key function is to provide relief from some regulations to fintech firms that wish to test innovative technology-based financial products. Certain conditions must be met to 'enter' the sandbox. Typically, the product must be truly innovative, must have promise as a benefit to consumers, and must call for regulatory support and guidance. Once 'in' the FCA sandbox, a set of exemptions from regulatory requirements, such as having a financial services license, is arranged that is suitable to the nature of the product and related business model. Thus, many sandbox arrangements are at least partially tailored and negotiated. There are also limitations that are imposed in the FCA sandbox arrangements, such as the number of customers to be involved and the requirement that the company indemnifies them for losses. Furthermore, the customers must either be 'sophisticated' and/or given information such that they can provide affirmative, informed consent in using the product. After a testing period of a few months to a year, in which the FCA's sandbox team provides tailored guidance to the company, the company produces a report, which is reviewed by the FCA team. On that basis, the company and the FCA team jointly decide whether or not, and under what altered regulatory terms, to offer the firms' product to the wider pool of consumers.

In the following, we review FCA's communication in order to suggest its acceptance of fintech's own discourse on innovation and solution. The FCA, in an official document published in 2015, titled 'Regulatory Sandbox,' justified the establishment of the sandbox with references to innovation, preserving regulatory competitiveness globally, and the need to learn about the new technological innovations by regulators (FCA 2015).

In this FCA policy document, the most critical value appealed to is 'innovation.' For the FCA, innovation is important because consumers have efficiency interests in innovation that increase market competition. It is innovation that justifies one of the most questionable features of the sandbox, namely lowering regulatory barriers for individual firms. As the FCA document spells this out:

A regulatory sandbox has the potential to deliver more effective competition in the interests of consumers by reducing the time and, potentially, the cost of getting innovative ideas to market; enabling greater access to finance for innovators; enabling more products to be tested and, thus, potentially introduced to the market (FCA 2015, p. 2).

The sandbox's introduction is also legitimised through a reference to maintain the UK as the most innovative financial regulatory centre globally.

The FCA wants to promote competition by supporting disruptive innovation To remain Europe's leading FinTech Hub, we have to ensure that we continue to be an attractive market with an appropriate regulatory framework (FCA 2015, p. 5).

Being unreflexive to the problematic nature of its existence, the sandbox is mandated to facilitate fintech's insertion into society through mitigating 'risk.' In the 2015 document 'FinTech Futures' the UK GOS urges that

[t]he regulators are key to ensuring that existing, new, and emerging risks are identified and managed effectively (Walport 2015, p. 6).

With an emphasis on consumers protection from 'risk,' the FCA is to define 'what safeguards should be in place to ensure consumers and the financial system are appropriately protected' (FCA 2015, p. 3). As the FCA's own communication clarifies:

These safeguards ... include extra capital requirements, systems penetration testing and a secondary review of robo-advice by a qualified financial adviser, among others (FCA 2017, p. 4).

Thus, the conception of 'risk' is something that can be mitigated 'by implementing appropriate safeguards to prevent harm occurring' (FCA 2017, p. 6). The fact that in the case of some fintech, risk may be not only or mainly financially, but primarily socially harmful is not exposed (Clarke, 2019). The FCA regulatory sandbox is designed primarily by financial experts working for FCA. While other societal groups are invited to express an opinion about the sandbox, such as 'innovative businesses, trade bodies, accelerators, consumer groups and other stakeholders' (FCA 2015, p. 1). However, their input remains *ex-post*, invitation-only, and specific in times (as opposed to continuous).

The fundamental way in which the FCA sandbox is aware of fintech's importance for the larger society is its alleged positive effects on the financial inclusion of vulnerable consumers (UNSGSA 2019). Though no formal definition of 'vulnerable consumer' by the FCA is given, it would seem to encompass those who are heavily indebted, financially unsophisticated, or the intersection of these two sets. An app to facilitate the budgeting for and timely payment of bills for rent and utilities was tested (FCA 2017). Drawing on behavioural economics, a nudging app to promote the saving of small sums toward the payments of expensive debt ('prioritize and better manage debt') went through the sandbox (FCA 2017, p. 12). Other innovations included algorithms to provide consistent and useful advice to the indebted and interfaces to ensure that customers at the point-of-sale for financial products were aware of the terms and conditions.

Finally, the FCA also understands sandbox as a technique of regulation. The sandbox facilitates the testing of technology and business models:

Testing in a live environment provides an opportunity to understand how receptive consumers are to different pricing strategies, communication channels, business models, and the new technologies themselves (FCA 2017, p. 6).

During the testing period, the sandbox approach to fintech regulation is based on a collaboration between regulators and regulated: 'allowing the FCA to work with innovators to ensure that appropriate consumer protection safeguards are built into their new products and services' (FCA 2015, p. 3).

4. Sandbox approach: riskwashing disguised as risktaming

Contrary to its own presentation, we argue that the sandbox approach instead of regulating fintech, is involved in riskwashing fintech. A sandbox engages in riskwashing to the extent that it provides a stamp of marketability for fintech without being able to control for systemic risk, the lack of transparency of its operation creates an opportunity for framing fintech's riskiness, and its involvement in the creation of an adequate risk-profile makes it incapable of independently evaluating that same risk-profile.

To better see what we mean by riskwashing and how it is accomplished, it is important to distinguish it from de-risking. 'De-risking' occurs when financial companies withdraw their services from clients and even entire markets because the profits to be made are outweighed by the risks involved (Gabor 2019). This movement is driven by various factors: regulatory compliance costs,

more substantial capital requirements, and a turn to business models focused on core operations. De-risking can take several forms: disengaging from an economy, market, client, or asset class because their characteristics impose more risks than can be justified by possible profits. The sandbox clearly does not engage in de-risking.

Risk, however, need not be simply avoided—to produce value, it is possible to reduce risk in such a way that makes an investment, securitisation, etc. possibly profitable. This may be achieved by *risk-taming*. Risktaming is (attempting) to *produce characteristics of* an economy, market, client, or asset class that decrease the risk of engaging with it to an acceptable level in terms of profits. Risktaming is not directly driven by the same factors as de-risking. Instead, risktaming aims to increase firms' profit-seeking capacity generally, but in particular, their capacity to provide bankable assets that function as a place to park wealth and as collateral in the shadow banking system (Gabor 2019). Usually, there is some degree of state action that is necessary to make risktaming possible, for example, the involvement of public development banks (Mertens and Thiemann 2018), but the kind, extent, and effect will vary from case to case (Musthaq, 2020).

As we saw above, the FCA regulatory sandbox claims to be involved in risktaming fintech for consumers and commercial partners. However, we hold that the reality is rather different. Sandboxes are engaged in riskwashing: a degenerate form or cargo cult mimicking of risktaming. In riskwashing, organisations take actions to make it seem as if an asset class or technology or business model is not excessively risky, whether it is or not.

Riskwashing is analogous to how corporate CSR/sustainability reports notoriously obscure the companies' actual systemic impacts that issue them, sometimes called 'greenwashing.' There are three characteristics of a sandbox that create the riskwashing effect. First, due to the sandbox's design of testing fintech in a safe environment, based on a limited number and well-selected consumers, the sandbox experiment is incapable of generating information regarding the fintech's systemic effect (Clarke, 2019, p. 875). Instead, the sandbox's stamp of approval tends to obscure the systemic economic and social dangers that individual fintech efforts, different forms of fintech products, and the general effects of fintech on the financial system itself. As Omarova (2020) puts it:

If the specific assessment criteria for fintech products in the sandbox inadequately capture potentially problematic effects of these products on consumer interests or systemic financial stability, the resulting data will not be a reliable indicator of how that product will fare outside the sandbox. Even more importantly, many macro-level, systemic implications of a particular product may be inherently impossible or difficult to test in a controlled sandbox environment (46).

As such, the sandbox is an outlier to the post-GFC 'macroprudential turn' and belongs to the pre-GFC high liberal regulatory approach: it promotes a hands-off or laissez-faire approach of regulation, and it focuses on individual fintech operation in the financial market and thus lacks a systemic supervisory component (Baker 2013).

Second, the sandbox's design contains a level of opacity or lack of transparency (Laufer, 2003). The sandbox, as a form of principles-based regulation (Allen 2019, p. 615), relies on a 'dialogue' between the regulator and the regulated. This dialogue may promote transparency between those two parties but is likely to remain opaque to outsiders, such as other regulatory agents, firms, and consumers (Allen 2019, p. 602; Wu 2010). The result is that it is relatively easy to selectively shape the information about risks and hazards these other stakeholders receive about fintech companies and products (on risks to consumers, see Barefoot 2020).

Third, instead of being an outside observer and evaluator of fintech's risk profile, the sandbox is deeply involved in the development of fintech firms and products. As fintech firms go through the testing period, the firm's risk profile is jointly shaped by the fintech developer and the correspondent sandbox officials. At the end of the testing period, the sandbox team is not independent from the final product and thus not capable of independent evaluation.

It is not farfetched to regard regulatory sandboxes as fronts for the growing fintech industry and its imbrication in the fintech-financialization apparatus. The sandbox approach clearly does not

recognise the functioning of fintech as an extension of financialization that we call a fintech-financialization apparatus. Instead, sandboxes' riskwashing facilitates the insertion of fintech into society and thus further the financialization of society.

5. Fintech as an extension of financialization

Seeing the most important regulatory response to fintech standing on the side of fintech and not on the state, we find it very problematic. This is because, over the longer term, fintech seems destined, as it were, to come to play an increasingly important role in people's lives—even where it has already become commonplace. The regulatory sandbox approach accepts this 'naturalness' and 'inevitableness,' instead of looking at it more closely.

In the next section, we want to make a case for sandbox regulators that fintech, at least in many of its manifestations, is an extension of the general tendency towards financialization with a governance effect that has socially disruptive potential. As we draw out our account what we will call the fintech-financialization apparatus, it will become more apparent that fintech's logic is not simply disruptive in the narrow financial market and business strategy sense but is potentially socially disruptive in a significant and worrying sense. Therefore, it is imperative that sandbox regulators give up their riskwashing approach to the fintech and concern themselves with the broader notion of fintech that we suggest here.

5.1. The fintech-financialization apparatus

We will approach fintech and financialization as what Michel Foucault would call an apparatus (a translation of *dispositif*). He characterises an apparatus as an ensemble of interlocked but often conflicting material and discursive elements: 'discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral and philanthropic propositions' (Foucault 1980, p. 194). An apparatus will be a *response* to some needs or goals delimited by actors in society, but those needs and goals can mutate in ways that open new opportunities and create new needs. For Foucault, the working of an apparatus has the *effect* of the emergence of a specific category of people that enter into further socio-economic relations (1995, pp. 278–80).

Similarly, and more simply, fintech-financialization as an apparatus is made up of the sandbox and other regulatory agencies and practices together with other platforms, data-mining and analysis companies, consumers/customers/citizens, legislatures, banks, etc., that together devise and enact discrete social strategies and interrelations. It is important to see that the emergence of this apparatus is tied to the socially disruptive consequences the GFC as well as the stricter regulatory regimes that emerged in its aftermath. The fintech-financialization apparatus is a *response* to efforts to engage in banking practices more efficiently and reaching more customers, its post-GFC deployment (Fintech 3.0) is a reaction to tighter regulations, the emergence of 'big data' the computing power to process it, distrust in traditional banks, and other political, social and economic factors (Arner *et al.*, 2015). Regarding the *effect* of the fintech-financialization apparatus, we argue it is a catallactic-extractive form of classification of individuals that may well be socially problematic, destabilising, and disruptive.

5.2. Fintech-financialization as a catallactic-extractive governance apparatus

In IPE, financialization has been approached in many ways with consequences for the spread of financial relations for production regimes, the prominence of shareholder value as opposed to other stakeholders, and changes in everyday life (van der Zwan 2014; Mader *et al.* 2019). At the heart of most IPE approaches is a transformation of financial markets through which capital markets tend to displace traditional banking's logic to originate loans in response to demands for

liquidity (Hardie *et al.* 2013). The insertion of fintech into the transformation from bank-based to market-based finance accelerates this transition and also amplifies a catallactic-extractive logic of financial markets, a process we will detail in this section.

The emergence of market-based finance, as Hardie *et al.* (2013) explain, refers to the process of commercial banks' changed valuation of their balance sheet, both their assets and liabilities, from bank-based to market-based techniques. Since the 1990s, in western market economies, gradually and to varying degrees, items on banks' assets (deposits) and liabilities (loans) are turned into marketable securities that may be further traded on capital markets. This technique is also called securitisation or originate and distribute model, and as Hardie *et al.* argue, has an overarching impact on the conduct and logic of finance, banks' relation to the state, and social and economic relations. In market-based finance, banks are no longer in the position to provide patient capital to firms or households as they themselves face constraints set by capital markets. This does not mean that bank-lending becomes obsolete; on the contrary, as Hardie *et al.* demonstrate, 'bank assets increased relative to the size of equity and bond markets in 2000–2007' (Hardie *et al.* 2013, p. 703). What is changing due to securitisation is the logic of bank financing: 'whether sold directly or securitised before sale, the loan is made only because the bank expects it can be sold, with the terms of the loan determined by that prospective sale' (Hardie *et al.* 2013, p. 710). Or, as Sassen observed with regards to housing finance, 'the new logic of the financial sector did not reside in the provision of housing but in the expansion of securities markets' (Sassen 2017, p. 6).

The emergence of capital markets as key sights of financial intermediation combined with the changing logic of finance is not neutral to income redistribution (Lysandrou and Nesvetailova 2015, Nesvetailova 2015). In the run-up to the 2008 financial crisis, banks either sold items from their balance sheet directly or securitised them and sell them on the financial markets or to shadow banks (Hardie *et al.*, 2013, p. 710). Securitisation, the repackaging of pools of assets into tradable security, however, further complicates the conduct of finance. As Pozsar *et al.* (2010) explained, securitisation results in a 'daisy-chain' of steps that may include '(1) loan origination, (2) loan warehousing, (3) asset-backed-security (ABS) issuance, (4) ABS warehousing, (5) ABS CDO issuance, (6) ABS –intermediation and (7) wholesale funding' (Pozsar *et al.* 2010, p. 11). As Sassen observed, the result is that this process distances the financial instruments traded and the underlying securitised assets (Sassen 2017). Moreover, Pozsar *et al.* observe 'the obvious danger in using private sector balance sheets to underwrite large quantities of credit and liquidity puts against high-quality structured credit assets is the difficulty in accurately measuring correlation' (Pozsar *et al.* 2010, p. 3). Moreover, ABS trading involves a large number of institutions and actors, not only banks but investors, shadow banks, insurance companies, rating agencies, and regulators (Langley 2010). These actors are, obviously, differently embedded in different national regulatory settings with a marked effect on their functioning (Thiemann 2012). Thus, pre-crisis, the financial system in western democracies turned from bank-based to market-based where financial transactions now apply for an increasing amount of different assets, the spread of securitisation distanced assets' market values from their financial value in a way that is obscure to most observers and involved a large number of different actors. In sum, finance became more extractive, i.e. derived financial value from an ever-increasing pool of assets and less transparent regarding the valuation of securitised derivatives.

Post-crisis, with looser monetary policy and changing regulatory context, fintech's use in capital markets has accelerated (Langevin 2019). This is because fintech, through its capacity to process data, its catallactic effect, offers algorithmic opportunities to mitigate risks on these markets, thus further increasing the lucrativeness and ultimately the size of financial markets. As such, fintech's inclusion into finance has accelerated the transition from bank-based to market-based finance; with Covid-crisis induced further digitalisation of finance, its effect is expected to amplify.

'Catallactic' here recalls the use of this term by Hayek referring to the emergent ordering and reordering of market relations based not on a central planner directing on the basis of collected information, but rather on the basis of the *incomplete but diffused* information market actors use to seek out advantageous trade (Hayek 1945, Hayek 1976 [1998], p. 108, 111, 114–20). The creation of

tradable securities, which is at the heart of banks' new business model according to the new logic of market-based finance, requires information. Knowing what assets are available, according to what norms and standards, and in what quantity is crucial to the functioning of capital markets (see Braun, 2016 on index tracing funds).

To make this clear, from the perspective of *information*, there is a major difference between bank-based vs. market-based finance. In market-based finance, competitive capital markets aggregate diffuse information signals and effectively transmit them to investors (Levine 2002, p. 400). Fintech is designed and can evolve in such ways as to 'aggregate diffuse information signals' to assist capital market actors. However, fintech's information process is not neutral with regard to finance and society. Its catalytic effect within the financialization-fintech apparatus takes the form of assigning a wide array of different classifications pertaining to the firms and individual's economic and social behaviour: age, gender, education level, employment, relationship status, number of children, political views, ethnicity, indebtedness, health concerns. For example, Acxiom (2019) claims to be able to process 10,000 attributes for 2.5 billion people. As such, fintech, through its catalytic effects, classifies data to information and thus its involvement increases the scope of financial transactions, what is a tradable item what is not. It proceeds through non-transparent ways that also impacts society. Classifications always have social implications; however, diffuse they may be (Fourcade 2016).

Moreover, any of these processes are synthetic, constructed by data mining, and inferential algorithmic analytics. Algorithmic processes, as Introna (2015) argues, are particular for their ability to crisscross social boundaries, access data from both public and private databases, interconnect actors in different domains, and create such algorithmic governance structures within which 'in which the subjects actively participate in their own algorithmic self-regulation, rarely directly and through a complex stream of mediated practices, are often dispersed and not directly amenable to scrutiny' (Introna 2015, p. 19). It creates a 'continually evolving liquid assemblage' within which 'many of the traditional institutional actors, boundaries, and categories such as public/private, citizen/customer, and innocent/suspect have become malleable and interconnected' (Introna 2015, p. 19). Thus, fintech poses particular challenges for regulators.

Here we would like to draw attention to one particular regulatory problem created by fintech's inclusion to finance. Notice that any firm or individual could be represented in an indefinite number of ways as some or all of these attributes are combined by complex and opaque algorithms to create indefinite versions of that individual's data profile. Speaking of individuals' data profiles, then is a vast simplification. They do not relate essentially to the individual, as if they were a file folder containing all and only data about the individual. Instead, they are constructions of the application of algorithms and deep learning networks that draw out from the masses of information of masses of firms and people categorizations, both recognisable and alien-yet-usable. This very important caveat regarding the term 'data profiles' should be kept in mind, not only because it is an oversimplification, but because of its social significance (see below), (for more on this, see Yeung 2018, esp. 11).

Clearly, not everyone will have discernable 'scores' of any significance for all attributes that can be distinguished. However, those who have high 'scores' are certainly data-rich. The richness here is not to be understood as in 'personal wealth,' but instead in the sense that a coal seam is rich. They are, especially in combination with comparable others, a resource to be mined for the development and deployment of profit-making behavioural interventions. In the context of the financialization-fintech apparatus, this is where the 'extractive industry' metaphor tends to break down. Coal is just either there, physically, or not. The financialization-fintech apparatus, deploying a wide range of feedback, nudges, and more traditional advertising, can *create*, at least *in potentio*, that from which it extracts value.

The overall picture that results in the adaptation of fintech by the financial industry enhances the 'efficiency' of market-based finance; it accelerates an opaque creation of asset classes for further investment purposes. In other words, fintech-financialization is simultaneously catalytic, in as

much as is the means by which market participants gather knowledge to create tradable financial instruments, and is at the same time and through the same mechanisms extractive (even, in a sense, creative) of the value that underlies those instruments. The result is a non-transparent, algorithmic process that draws more material elements in undecipherable ways to the financialization apparatus to which fintech now belongs.

Riskwashing is key to understanding these developments. This is because regulatory sandboxes support the development, consumer acceptance, and social embedding of fintech products that extend the catalactic and extractive capacities of actors in market-based finance through riskwashing. Part of both the operation of and the legitimation of this riskwashing is the deployment of discourses of solutionism and innovation by both fintech firms and government regulators in response to consumer and social problems that already feature in our financialized world. However, as we will see in the next section, building on Healy and Fourcade's theory of market- and data-driven social classification, this makes responses to fintech like the regulatory sandboxes complicit in worrying forms of socially disruption.

5.3. The socially disruptive effect of the fintech- financialization governance apparatus

In this section, we examine the fintech-financialization apparatus as a catalactic-extractive technique of governance that produces social and individual conditions that may result in social disruption.

Important scholarship on the impact of contemporary technological development of information measurement and processing backed by algorithmic techniques and dependent on large volumes of quantitative data argue that it is likely to function so as to segment society into classes according to an almost exclusively market orientation (Fourcade and Healy 2017).

However, Fourcade and Healy (2017), with a purpose to provide a framework of analysis for all social areas where technological development of measurement has an impact ranging from consumption, health, employment, education, intimate social relations, legal services, and politics, etc. do not pay special attention to the changing logic of finance, fintech and the increasing catalactic-extractive effect of the fintech-financialization apparatus. We argue that incorporating the financial sphere's impact on society into their analysis of social stratification may modify their findings.

For Fourcade and Healy, the new measurement techniques' 'goal is to make a profit by commodifying people's behaviors (defined through measurements), their tastes, and, increasingly, their social relations. This desire to better score and rank users on multiple dimensions, and the subsequent linking and integration of measured profiles across domains, creates the possibility of übercapital (Fourcade and Healy 2017, p. 16). Übercapital is Fourcade and Healy's (2017) term of art for the value that can accrue to individuals by virtue of their particular extractive value to others in 'the market.'

Considering, as we do here, that the accumulation of übercapital occurs through financial markets, however, modifies their finding. This is because this accumulation is the outcome of hundreds or thousands of attributes and a doubly-opaque financial market: 1) market-based finance's technique of securitisation creates the daisy chain of transactions and actors between assets and financial valuation of the same assets, and 2) the fintech induced algorithmic catalactic and extractive valuation that now underpins securitisation further increases opacity of financial valuation of assets. As a result, individual and übercapital are distanced to a larger degree than acknowledged by Fourcade and Healy.

Nevertheless, the accumulation of übercapital, while in a sense, a pure creation of financial market forces, is not entirely disconnected from individuals' given material conditions. As an extreme example, those who enter late adolescence financially well-off have exceptional opportunities to accrue übercapital. Barring a wide range of contingencies, they are likely to maintain excellent credit scores, have rich social networks, enter a stable profession, have consistent and reliable

health care. However, even those from more modest means who do not become exceptionally materially wealthy may well own valued attributes and join the ranks of what we might call the *überreich*. For this class:

the infrastructure of *übercapital* revives an old kind of privilege. It promises the portable, universally recognized trustworthiness and good reputation of the gentleman abroad, sustained by his word and a letter of introduction, in a newly quantified and nominally democratized form (Fourcade and Healy 2017, p. 21).

On the other end of the scale are the *überpoor*, with ample social characteristics to accumulate *übercapital*. In connection with concerns about the ‘unbanked’ and financial inclusion, we can see that whatever benefits there are to giving poor or indebted persons access to credit and better advice about how to manage their incomes relative to debt, this population presents enormous opportunities for value extraction by the financialization-fintech apparatus. Our discussion above raised this issue through the ways in which fintech ‘solutions’ to financial inclusion have been urged by the World Bank and other proponents of ‘development by finance’ (Gabor 2019). There is a good reason to think, given the lack of success of micro-finance and fintech in improving the lives of persons in developing countries, that the extractive value of these individuals will result in their accumulation of *übercapital* with stratification effect as defined by Fourcade and Healy.

However, *übermiddle*’s attribute will be different from what Fourcade and Healy predict. Strictly speaking, the *übermiddle* is not one uniform class, but a plethora of specific classifications where one’s *übercapital* status will be relatively unstable and unpredictable and certainly non-transparent. Here, the difference between the extractive value of one data profile and one’s *übercapital* is crucial and needs clarification. As we stressed above, a data profile will necessarily remain opaque to the profiled. It will consist of hundreds or thousands of attributes that have been combined, analyzed, and recombined by multiple ‘black-box’ algorithms.

Übercapital is linked to one’s data profile in the case of the *überreich* and the *überpoor*, while there will be no real transparency about their relation, neither will it be mysterious. While the *übermiddle* will be relatively well-off in the sorts of privileges, access, and restrictions they encounter, there will not necessarily be a clear pattern nor any way to discern what manipulations of data in their profile have led to their living conditions. So while the workings of *übercapital* fade into the background for the *überreich* (Fourcade and Healy 2017, p. 21) (and the *überpoor*, for that matter), they are similarly opaque to the *übermiddle*, but highly salient in terms of the individual’s life chances, without the regularity of privilege and opportunity. A result, we call socially disruptive.

The *übermiddle*’s experienced social disruption may refer to social processes such as distorted redistribution of wealth, privacy violations that may also result in all forms of discrimination and exclusion, facing ethical issues that may result from the selection bias of robo-advisors, distorted effect with regards to cultural differences in uses, and the undermining of social trust in institutions due to the arbitrariness of digital valuation, etc. Our point here is that the sandbox approach to fintech regulation, instead of controlling the above-described process, amplifies fintech’s potential to be socially disruptive through riskwashing fintech.

6. Conclusion

In this paper, we have examined regulatory sandbox, an approach to fintech-regulation, which hitherto has received little critical, but rather mostly endorsing, attention. Regulatory sandboxes are not neutral regulatory tools that simply solve the problem of making fintech safer for consumers and the economy, but though their riskwashing approach are active elements in a fintech-financialization apparatus that has governance characteristics and opens up new possibilities of social disruption.

Obviously, fintech-financialization penetration to society meets with a number of obstacles which limit the effect of the apparatus as we described here (Bernards 2019), and it is also a globally highly uneven process (Kvangraven *et al.* 2021). However, given the magnitude of this potential impact, it

would be crucial to open the regulatory process to stimuli that force conscientious awareness and incorporation of factors that we outlined here.

As a first step, sandbox regulators should not naively accept fintech's discourse of innovation and solutionism. Fintech's ability to increase financial inclusion, the naturalness of technological innovation, and the superiority of market-based solutions should be questioned. Second, the sandbox approach's riskwashing effect should be countered through an evaluation of fintech's systemic effect, the malleability of the sandbox's stamp of approval, and the endogeneity of the sandbox's officials' practice to tested firms' riskiness reduced. In this regard, fintech regulation should also be, as was envisioned early on, a learning tool for regulators (Walport 2015, p. 52), with regtech developing as fast as fintech. Third, the sandbox approach should incorporate input from constituency groups and NGOs, especially in relation to vulnerable populations, as well as experts in ethics, political economy, economic sociology, and social studies of science and technology could in some cases add much to first-order evaluation of proposed fintech innovations (cf. Black 2013). Moreover, the inclusion of a large number of social actors is also crucial because sandbox, as it stands today, displays a very low level of transparency and accountability, thus hampering adequate democratic oversight of its operations. (See above, this research was hampered by the UK FCA's decline of our requests of information). Democratic oversight should function not only as a general control over the interaction of public and private entities but also as a form of accountability regime that interacts with the various constituents at various scales and forms. Fourth, we recommend thinking and inventing different approaches to fintech regulation. Sandboxes are not only problematic for their riskwashing effect but also very expansive operations (a key finding of the (UNSGSA 2019 study). Especially in Global South countries, they may take away scarce resources from broader market-based solutions. Finally, we believe it is time to increase the number and effectiveness of veto players and veto points in the fintech industry. It is imperative to enable various constituents to be able to block fintech's penetration into certain domains. It is no longer sufficient to increase fintech's safety and soundness. We need regulatory mechanisms capable of empowering a large number of actors with outside options to fintech that help them effectively exclude fintech from specific and individually variable social realms.

Notes

1. From Citibank to Hungarian regulators, Microsoft CEO to there is a growing acceptance of fintech for increasing social inclusion: Citibank: <https://www.citivelocity.com/citigps/banking-next-billion/> accessed at 10.12.2020
Hungarian regulator: <https://pages.cfte.education/cfte-is-in-sff> accessed at 10.12.2020
CEO of Microsoft https://www.youtube.com/watch?v=kSE6eWP_QeU&feature=youtu.be accessed at 10.12.2020
2. <https://www2.deloitte.com/uk/en/pages/financial-services/articles/journey-through-financial-conduct-authority-regulatory-sandbox.html?id=gb:2wb:3dn:4ECRSSandboxJourney:5eng:6fs:InnFin> accessed at 6.26.2020
<https://www.raconteur.net/finance/fca-sandbox-fintech> accessed at 6.26.2020
https://www.bakermckenzie.com/en/-/media/files/insight/publications/2018/12/guide_intlguideregulatorysandboxes_dec2018.pdf accessed at 6.26.2020
<https://ftalphaville.ft.com/2018/12/05/1543986004000/A--fintech-sandbox--might-sound-like-a-harmless-idea--it-s-not/> accessed at 6.26.2020
<https://www.moodyanalytics.com/regulatory-news/Oct-23-19-FCA-Regulatory-Sandbox-Open-for-Applications-to-Cohort-6> accessed at 6.26.2020
<https://www.ftadviser.com/regulation/2020/05/05/fca-accelerates-sandbox-pilot-amid-covid-19-concerns/> accessed at 6.26.2020
3. <https://www.fca.org.uk/firms/innovation/regulatory-sandbox> accessed at 6.27.2020

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No potential conflict of interest was reported by the author(s).

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