The following is a chapter from the author’s dissertation *Regulator reputation and the successful governance of innovation: Lessons from financial technology supervision*

# Regulatory sandboxes and innovation in practice: Lessons from the UK’s regulatory sandbox for fintech

*Abstract*

Regulatory agencies seek to govern emerging new kinds of products and services in a way which manages risks while not unduly stifling innovation. Regulatory sandboxes are an instrument which aims to achieve this balance. Literature to date has focussed on how sandboxes can best be designed to safely facilitate innovation, but offers only limited research into how actual sandboxes perform in practice. This chapter builds on that burgeoning scholarship, presenting findings from a case study of the world’s longest-running sandbox: the UK’s regulatory sandbox for fintech. The case study demonstrates that the sandbox plays multifaceted roles in facilitating innovation. Far from its popular image as a mere ‘safe space’ from regulatory interference, the sandbox is better understood as an active regulatory intervention bringing innovator firms into the supervised, mainstream market.

## Introduction

Regulatory agencies seek to govern emerging new kinds of products and services in a way which manages risks while not unduly stifling innovation. Innovation is a primary driver of economic growth and better quality of life. Regulators increasingly seek to either tolerate or actively facilitate innovation in their jurisdiction (Renda and Simonelli 2019). Yet, innovations sometimes pose risks which regulators aim to manage (Brownsword, Scotford, and Yeung 2017).

Regulatory sandboxes are an instrument with the potential to balance the goals of facilitating innovation with managing its risks (Bromberg, Godwin, and Ramsay 2017). Sandboxes are ‘concrete frameworks which, by providing a structured context for experimentation, enable where appropriate in a real-world environment the testing of innovative technologies, products, services or approaches … for a limited time and in a limited part of a sector or area under regulatory supervision ensuring that appropriate safeguards are in place’ (ECOMP 2020).

The world’s first regulatory sandbox was established in 2015 with the UK’s FCA’s regulatory sandbox for emerging technologies in fintech (UK FCA 2015a). Since then, sandboxes have been established in more than 50 jurisdictions and have been promoted by the European Union (Ranchordas 2021a). Governments have cited a range of justifications, but safely facilitating innovation has been the central policy goal (Philipsen, Stamhuis, and de Jong 2021). Sandboxes typically focus on innovative products and services (‘innovations’) at the pre-commercial stage i.e., on innovations which are being developed, tested, and refined prior to wide-scale diffusion.

Theory suggests three roles sandboxes can play in facilitating innovation in this context. First, sandboxes can create space for innovation; providing innovators with temporary dispensations from regulatory requirements which normally stymie experimentation with new products (Buckley et al. 2020; Gromova and Ivanc 2020; Omarova 2020; Ranchordas 2021b; Khalid and Kunhibava 2020; Yefremov 2019; Allen 2019; Philipsen, Stamhuis, and de Jong 2021; Zetzsche et al. 2017; Ringe and Ruof 2020; Ahern 2021). Second, sandboxes can be a means to develop superior supervision over a given innovation. They provide opportunities not only for innovators to experiment with products, but for regulators to experiment to discover the best legal response to a given innovation (Ranchordas 2021a; Omarova 2020; Yefremov 2019; Philipsen, Stamhuis, and de Jong 2021; Allen 2019; Ahern 2020). Finally, sandboxes can provide direct support to innovators, such as free legal advice (Ranchordas 2021a; Allen 2019; Gerlach and Rugilo 2019).

Most literature to date has focussed on how sandboxes can best be designed to fulfil these various roles. Sandboxes must have a legal basis upon which to operate (Ranchordas 2021b, 4) and administrative procedures (Omarova 2020, 41; Huang, Yang, and Loo 2020) in place to provide space, superior supervision, and/or support respectively. Not every sandbox will fulfil all three roles (Khalid and Kunhibava 2020). Trade-offs can arise. Designing a sandbox which gives innovators freedom to test products may be at odds with designing a sandbox which produces rigorous experimentation with legal responses (Philipsen, Stamhuis, and de Jong 2021). Different sandboxes in different jurisdictions and for different sectors aim to facilitate innovation in different ways, and these differences are reflected in their various designs (Ranchordas 2021b, 9). There has been only limited research, however, analysing sandbox implementation (Choi and Lee 2020; Butor-Keler and Polasik 2020; Alaassar, Mention, and Aas 2020; 2021; van der Waal, Das, and van der Schoor 2020). Of these, only three studies specifically examine how well sandboxes facilitate innovation in practice.

In their analysis of the FCA’s fintech sandbox, Butor-Keler and Polasik (2020) find evidence that political constraints, capacity issues, and regulator culture may limit the potential for sandboxes to facilitate innovation. Their analysis, however, is at a high level and does not seek to draw out a broader range of mechanisms through which sandboxes in practice facilitate or fail to facilitate innovation. Alaassar, Mention, and Aas (2020; 2021) have explored the day-to-day function of 16 different sandboxes from around the world. Through their in-depth analysis, they find that the capacities, perceptions, and attitudes of innovators — and not just regulators — is key to how well sandboxes facilitate innovation in practice. Alaassar et al.’s studies, however, have only a very small number of participants from each sandbox and focus primarily on innovation from a business rather than regulatory perspective. A more general limitation of research on sandboxes in practice has been that this literature has not been well integrated with broader literature on law and regulatory governance in regard to innovation (Gazel and Schwienbacher 2021).

This chapter aims to contribute to this burgeoning scholarship, asking: to what extent and how, in practice, do sandboxes fulfil their potential to facilitate innovation? The chapter presents findings from a case study of the world’s longest-running sandbox: the UK’s regulatory sandbox for fintech. The case study included a document study of publications from the Financial Conduct Authority (the agency which administers this sandbox) and interviews and questionnaires from fintech companies.

This chapter begins by elaborating the case study methodology. The findings of the study are then presented in two sections. The first describes how the FCA intended its sandbox to facilitate innovation by providing space, superior supervision, and support. The second examines how and how well the sandbox fulfilled these roles in practice.

This chapter concludes with key practical and normative lessons from the FCA case. It is argued that, far from its popular image as a mere ‘safe space’ where firms can experiment free from regulatory interference, the sandbox is better understood as an active regulatory intervention. An intervention which brings innovators into the supervised, mainstream market through a combination of support, space, and iterative refinements of supervision. A central contribution of the study is demonstrating the means through which sandboxes allow regulators to govern the innovation process in a ‘soft’, informal, introductory manner, in the absence of *sui generis* rules or policies (Mandel 2013). Yet, the sandbox is not an unproblematic success story. Findings here reinforce that sandboxes, if improperly designed and implemented, can pose risks to private innovation and to the public interest.

## Methodology

This chapter is based on a larger exploratory, mixed-method case study of the UK’s regulatory sandbox for emerging technologies in fintech (here forth: ‘the sandbox’).[[1]](#footnote-1) The case study included a document study, interviews, and a questionnaire.

The document study involved a qualitative content analysis of all publications by the Financial Conduct Authority to date which refer to its fintech sandbox. This analysis was necessary because, while sandboxes can fulfil the three roles described, not all sandboxes aim to fulfil all three, or all three to the same extent. Further, the precise ways in which sandboxes are designed to fulfil these goals differs sandbox to sandbox. The document analysis was conducted first to clarify the intentions the FCA had in regard to facilitating innovation via the sandbox. While prior studies have discussed the FCA’s innovation goals (e.g., Allen 2019), this is the first study to present findings from a systematic document study capturing the full range of the FCA’s intentions for the sandbox. Documents were collected by searching the FCA’s website, then qualitatively analysed using NVIVO. The goal of this analysis was to determine in what ways the FCA intended the sandbox to facilitate innovation (space, superior supervision, and support), whether the FCA reports it achieved those goals and how, and what factors the FCA cites as enabling or constraining the sandbox from facilitating innovation.

Interviews were conducted with 21 fintech firms (15 sandbox participants, and 6 non-participants).[[2]](#footnote-2) Interviews with firms included questions about both fintech firms’ perceptions of the sandbox and its impact on their sector, and (for participants) their specific experiences with the sandbox and its influence on their ability to develop and commercialise their products. Transcripts were qualitatively coded in NVIVO. Firm comments were coded according to the major theorised roles of the sandbox (space, superior supervision, support), and then into sub-categories describing the more specific ways the sandbox facilitated (or failed to facilitate) innovation. Additionally coded were firm remarks about the factors which enabled or constrained the sandbox from facilitating innovation in their case or in general.

Thirty-two firms responded to a questionnaire. Descriptive statistics from the questionnaire were used to analyse whether firms sought to apply to the sandbox to benefit from space, support, or superior supervision.

The document analysis was conducted first to clarify the intentions the FCA had in regard to facilitating innovation via the sandbox. The interviews and questionnaire responses were then analysed to examine how the sandbox function in practice, from a firm perspective. Comparing findings from the document study, interviews, and questionnaire responses allowed for an analysis of how – in actual implementation - this sandbox facilitated (or failed to facilitate) innovation. In presenting insights derived from the study, the focus is on reporting how sandboxes in practice (fail to) facilitate innovation in ways that challenge, or expand on, existing theory.

## The innovation goals of the UK’s fintech sandbox

### Space

The document analysis shows the FCA justified the introduction of the sandbox by arguing existing financial regulation was impeding innovation. Regulation was designed for incumbent firms and their activities, and failed to keep pace with innovation. This left innovating firms uncertain about how regulation might apply to them, if at all. Regulation was also said to make it slower and more expensive for firms to innovate.

In particular, the FCA cited a clash between product development practices of fintech start-ups and financial regulatory requirements. Fintech start-ups in the UK at this time were often operating on ‘lean’ start-up methodology. The lean methodology centres on an experimental approach to product development. To simplify: firms focus on developing a minimal viable product as soon as possible. This product is a pilot version of the finished product. Firms then test and adapt the MVP with their customers iteratively; releasing several versions over time based on rounds of customer feedback. Financial regulation at the time, however, was at odds with this model. Firms had to have all applicable authorizations before they provided products or services to customers. Firms were typically unwilling or unable to invest significant time and money into an authorization just to run a 10 customer ‘proof of concept’-type test. Further, the authorization process required a definitive statement of precisely how the product would work; going against the experimental approach companies sought to take.

A central role for the sandbox, then, was to provide a “safe space” (UK FCA 2016) allowing firms to “test their propositions” (Woolard 2018a) without “immediately having to meet all the normal regulatory requirements” (UK FCA 2013), or “incurring all of the normal regulatory consequences” (Woolard 2016c). At times, the agency was more explicit. The FCA might be able to “limit or … define sandbox firms’ liabilities”, “modify rules” (Woolard 2016b), and “waive rules” (UK FCA 2018) during the sandbox test period. The sandbox would thus grant regulatory dispensations to enable product piloting with real customers and, therefore, facilitate the development and commercialisation of innovations.

However, FCA publications also repeatedly state the sandbox would not involve lower regulatory standards. The agency pledged there would “unequivocally be no lowering consumer protection standards” (McDermott 2016) in the sandbox. In 2018, the agency continued to argue “all firms adhere to the same regulatory standards” in and outside the sandbox (UK FCA 2017c). This might seem like a contradiction. How could the FCA simultaneously say they would waive or modify rules during a sandbox test while also saying all firms must meet the same standards?

The answer lies in the FCA’s principles- and risk- based approach to regulatory enforcement (Gilad 2014). When the FCA say standards will not be lowered this did not mean that all firms have the same requirements to meet said standards. How a firm would ensure protection for its consumers is different, for example, depending on whether it has 50 customers or 5,000. While the same ‘standards’ apply to all firms, sandbox participants could benefit from reduced compliance requirements against those standards, proportionate to their risk.

### Supervision

The FCA envisaged the sandbox would lead to the development of superior supervision in several ways. For individual participating firms the sandbox offered an alternative to traditional authorization processes that would otherwise be required to pilot their products. The sandbox was not presented as universally superior to traditional authorization. Rather, the sandbox would be a superior option for certain firms; those in need of a tailored process because they were innovating in a regulatory “grey area” (UK FCA 2017d). It was anticipated such firms would require “case by case” (UK FCA 2017b), “bespoke” (UK FCA 2015a), or “tailored” (Woolard 2016a) supervision in a way firms using established technologies would not. With the sandbox, the regulator aimed to “enable the FCA to work with innovators to ensure that appropriate consumer protection safeguards are built-in to their new products and services before these reach a mass market” (UK FCA 2015b). Finally, the sandbox would expedite authorization.

The FCA expected the sandbox would also provide test cases to potentially inform the development of better rules and policies applying to the sector as a whole. The sandbox is often described as a “learning journey” for the regulator (Woolard 2016c). This learning would not be limited to the sandbox itself, but was envisaged to potentially lead to adaptations in how the whole agency would supervise innovation. Instead of the “more traditional Big Bang approach to regulatory reform”, the agency speculated about a transition to the more “collaborative, experimental and iterative approach” as “a sensible way to adapt the regulatory framework in fast moving markets” (Starks 2016).

Sandboxes can certainly be designed to facilitate formal regulatory experiments in regard to innovative products. That is, sandboxes can be used to test possible legal and regulatory approaches to innovations. For instance, a regulator might conduct an experiment by applying one set of rules in one part of the country, and another set of rules in another part, to see what impacts these different rules have on risk management and innovation facilitation. Formal regulatory experiments aim for a science-like rigour. They require representative sampling, control groups, hypotheses etc. (Ranchordas 2021a). The FCA, however, did not express the intention for its fintech sandbox to involve formal regulatory experiments. There was no intention to systematically test what impact various regulations had on firms. Superior supervision would rather manifest in the improved regulation of individual firms and through (non-scientific) ‘implement then evaluate’ type learning typical for regulatory agencies.

### Support

The FCA envisaged the sandbox providing “space *and* support” (Woolard 2019) to firms in developing and commercialising their innovations. In FCA publications, advisory services are the most prominent kind of support discussed. The intention was for regulator staff to assist participating firms in interpreting financial law as it applies to their specific product via “bespoke engagement” (Woolard 2016b). This advice, the FCA hoped, would help firms spend less time and money getting innovative products to market.

The regulator also cited more indirect ways through which the sandbox would facilitate innovation. The sandbox itself (along with the larger Project Innovate) would attract entrepreneurs and investment to the UK. Beyond the UK, the FCA fintech sandbox would serve as a regulatory model to other jurisdictions; promoting innovation globally.

With the FCA’s stated goals in mind, the next section analyses how the sandbox fulfilled (or failed to fulfil) its intended roles in practice. It condenses case study findings into a series of key insights.

## Innovation in the UK’s fintech sandbox in practice

### Space

#### The regulatory space for innovation in the sandbox is more cramped than some anticipate.

Interviews with fintech firms show most agree the sandbox helps create space for product testing and refinement. It was rarely the case that existing regulatory rules outside the sandbox made product testing illegal per se. Rather, the major benefit of the sandbox was reducing testing costs. In the sandbox, compliance requirements could be lowered during the test to make it quick and affordable. As the FCA had hoped, firms generally said the sandbox helped to address tensions between lean business models and regulatory compliance. As one respondent summarized:

“We’re building [COMPANY] on lean processes… we wanted to go out to market, get some samples and work out what people want, rather than us trying to guess what people want. And this, the sandbox has allowed us to do that…you couldn’t do it otherwise” (SB6).

Respondent firms, however, also report that the space for innovation in the sandbox is relatively cramped. The FCA is supportive of innovation and has a competition as well as consumer protection mandate. Together, this has meant the FCA has the motivation and legal capacity to be flexible about compliance requirements. However, the FCA cannot offer exemptions to European nor UK financial law. Further, the FCA is only one of the regulators with whom firms must contend. Other regimes, like tax and privacy, set legal limits on what firms can test. These limitations took some firms by surprise. The marketing of the sandbox as a ‘safe space’ led some to expect they could test free of authorizations or other requirements. They were quickly disavowed of this misconception.

Firms note the FCA “don’t tend to accept compromises” on actual rules (SB10), a fintech firm’s “arguments don’t matter” (SB2), and it is futile for firms to “try to change the regulation” (SB9). Even with the potentially lower requirements of the sandbox, “red tape” (NSB1) and thus costs are still an issue. Several firms argue the sandbox is no faster or easier than a standard authorization process. Finally, some firms report they were limited not by ‘black letter’ law, but by rules and norms which had built up over time to suit incumbents. For example, several firms complained about an alleged requirement to provide customers with all their documentation on paper rather than digitally. This prevented firms from piloting ‘digital by default’ products. Such requirements were not to do with law but rather the entrenched preferences of incumbents the FCA seemed unwilling to challenge. On the basis of these limitations, some respondents concluded the sandbox was only truly valuable for facilitating a narrow variety of innovation. The sandbox is useful for products innovative enough to warrant regulatory space in order to test them, but not so exotic as to meaningfully violate the rules or norms of the existing regime.

Some of these limitations have been identified in earlier studies of sandboxes in practice (Butor-Keler and Polasik 2020; Alaassar, Mention, and Aas 2020). These findings somewhat dampen expectations about the permissiveness and flexibility of sandboxes (Gromova and Ivanc 2020, 15). However, as will be seen, there is still flexibility within the legal limitations of the sandbox.

#### Regulators need to actively convince potential participants that the space is safe.

Interviewed firms often said that, even where the law did not prevent them from testing an innovative product, they still initially felt insecure about doing so. Their perception was typically that regulators are risk-averse and anti-innovation. Surely the FCA would shut down any discussion before it began.

However, the FCA’s messaging about the sandbox reassured many firms. Project Innovate appeared a clear statement of government and regulator support for fintech. Further, several firms report getting a more positive impression via meeting FCA staff on ‘road shows’ around the UK, at events in London, or visiting their incubator. Firms generally came to see the FCA as an agency open to discussing new products and services. The sandbox was a good faith effort by the regulator to establish whether innovations could be developed legally. It was this perceived openness more than any legal or administrative reforms of the FCA, many said, which made them believe there was space for innovation. For those firms who went on to participate, their experience in the sandbox typically reinforced this perception that the FCA could be trusted not to automatically reject an innovative idea.

Respondent firms, though, tend to report far greater distrust in FCA staff outside the Innovation Unit. In particular, firms cite a disconnect between Innovation staff and rank-and-file enforcement officers. The latter are said to be far less open to innovation and thus far less willing to create space for it to occur. As one respondent put it, there is a lingering perception that, on the whole, the “FCA still has limited trust in technology being able to do something” (NSB6). For these reasons, some ex-sandbox firms reported feeling nervous about returning to the agency to discuss the regulatory status of new products.

These findings reinforce that the space sandboxes can create is not just about dispensations in law (cf., for example, Philipsen, Stamhuis, and de Jong 2021). Sandboxes are as much, or more, about regulators taking an open stance toward innovation (Gromova and Ivanc 2020; Zetzsche et al. 2017; Alaassar, Mention, and Aas 2020, 12). These findings specifically build on Butor-Keler and Polasik’s (2020) conclusion that agency culture toward innovation can drive or inhibit the effectiveness of sandboxes. Findings here imply that cultural differences between divisions of agencies are also significant. Such intra-agency differences support Mangano’s (2018) expectation that fitting sandboxes into conventional command-and-control regulatory structures will be problematic in implementation.

#### Space can be unnecessary or even counterproductive to innovation.

For some firms, existing financial regulation was simply not a barrier to innovation. There were no legal issues nor ambiguities impeding the piloting or diffusion of the product. These firms, thus, did not need regulatory space in order to innovate. While for some firms this meant they did not need the sandbox, others still found the sandbox valuable for facilitating innovation (for reasons discussed future below).

Another group of firms, however, found regulatory space actively counterproductive to innovation. They suffered from too much regulatory space. Regulation for their kind of product or service did/does not exist. Alternatively, the FCA had/has yet to provide detailed guidance on how regulation will apply to businesses like theirs.[[3]](#footnote-3) In these cases, the absence of clear financial regulation limited innovation. Firms were unwilling to proceed with product testing until confident the product could be developed within the law.

More than half of interview respondents said that sandbox tests are thus not about – or not primarily about - testing the technical viability of products. The test is about regulatory viability. The interview results are mirrored in the questionnaire findings. One-third of questionnaire respondents cited they wanted to apply to the sandbox to “make sure we’re compliant with the law”. Only half as many respondents cited that they wanted the sandbox to “make the authorization process cheaper, easier, and/or quicker”. As will be seen, the value of the sandbox for such firms is not to shield them from regulation. Rather, to establish their products could be delivered legally, they needed the sandbox to confront them what compliance would require.

Firms who said they did not need the sandbox to pilot their innovative product, though, are more critical of the instrument. Some say it is a “gimmick” (NSB3). The sandbox is a distraction from the urgent need to publishing the consistent, sector-wide guidance which would facilitate the widespread diffusion of innovations. As one respondent opined, the sandbox is essentially trivial because only “once there is regulation will we have mass-adoption” (NSB5).

### Supervision

#### Sandboxes let participants test and refine not just their products, but their regulatory and commercial strategies; helping them enter mainstream market.

Firms generally state that the sandbox helped them to work out technical, commercial, and regulatory kinks in their product before they truly took it to market. Indeed, interviews highlight that firms see addressing technical, commercial, and regulatory barriers to innovation as inseparable processes. Finance is a heavily regulated sector. How a product functions on a technical level influences how it will be regulated. How the product is regulated has major implications for its commercial appeal.

Sandbox participants typically describe their test as a way to demonstrate to themselves and to potential partners and clients the technical, commercial, and regulatory viability of the innovation. Firms often describe the sandbox test as a demonstration that their innovation is “worthy” (SB11), “had merit” (SB13), is “economically viable” in the broader financial market (SB6) and can become “mainstream” (SB9). As one respondent summarized, “we wanted to show that change is possible. We wanted to demonstrate how that change could be done, and make it publicly available” (SB13).

Indeed, the sandbox gives participants the opportunity to refine their technical, commercial, and regulatory strategies in a cohesive way. The most straightforward example is firms addressing or avoiding regulatory barriers through technical and commercial changes. Several firms recall going into the sandbox with a very complex product or business model. Talking to FCA staff, they realized their proposal would trigger complex regulatory requirements. They then took that opportunity to redesign the product or rethink their business model in ways which made regulation far simpler.

“[When we first started out, cause [TECHNOLOGY] and all that wasn’t anything I'd done before … so even I made a few fortunate slips and called [PRODUCT THE WRONG THING] when it isn’t. You know, at the very beginning, even in our FCA sandbox application I was just reviewing it the other day. I did write in there that [PRODUCT IS X]. But it is not [X] it is [Y], is what [COMPANY] is… Because I was inexperienced…I assumed that it was going to be [X]. If it was [X] then yes, the FCA wouldn’t touch us with a bargepole” (SB6).

These kinds of early pivots were highly significant to the ability of firms to test and develop their product. Seeking authorization is an expensive process. Small or new firms may not be able to afford spending “months and months of trying to understand what it is and how it works” (NSB4), only to get it wrong.

Another example is firms adapting their commercial ‘pitch’ in light of regulatory concerns. Several firms describe developing a pitch for their innovation highlighting its novelty and exciting potential. This kind of pitch could put regulators on high alert that the product was risky or outside the law. Such language sometimes also raised red flags with potential customers, investors, and partners, concerned that the product was untested and ‘out there’. Through the sandbox firms could refine this pitch. They learnt to “verbalize a lot of things that were written down in code” (SB2), and to treat regulation as “a framework to translate my ideas through…like those playdough things you squeeze, and it comes out like a star…where I can translate it and communicate it to other financial people because I had the testing plan” (SB15). In other words, firms learnt how to pitch their products in a language financial professionals would find comprehensible and assuring.

These findings reflect those of Alaassar, Mention, & Aas (2020; 2021) in two respects. First, that sandboxes facilitate innovation by being proactive. Early in the product development process, and often in the absence of clear regulation, sandboxes allow for early government intervention. Intervention which aims to manage emerging risks and provide some certainty to innovating firms (see also: Gromova and Ivanc 2020; Buckley et al. 2020; Butor-Keler and Polasik 2020). As Ranchordas (2021a, 10) puts it, regulatory sandboxes are “primarily enforcement policies” rather than the absence of regulation. Second, that sandboxes provide ‘incubator’-like services for participants, especially small and inexperienced firms. Like a private incubator, regulatory staff sometimes work with firms in ways analogous to a consultant or business coach. Participants can talk through technical, commercial, and regulatory issues and get tailored guidance from skilled professionals in order to improve their offerings. This includes the ability to communicate in ways regulators understand (see also: Heimer and Gazley 2012).

#### The ability for a sandbox to provide ‘superior’ supervision depends on the motivation and capacity of its participants.

In interviews, firms tend to agree that the sandbox is contributing to superior innovation supervision in the ways the FCA envisaged. Notably, several firms said their sandbox test was used as a test case that went on to inform the FCA’s stance on specific innovations (Ranchordas 2021a; Yefremov 2019). Indeed, the FCA has published policy papers on distributed leger technology and cryptoassets implying test cases informed their stance:

“This previous experimentation and analysis proved invaluable when we came to develop a common cryptoassets taskforce framework’ (Woolard 2018b).

Innovation supervision, however, is not just something regulators deliver to regulated firms. As the FCA operates a principles-based enforcement strategy, the regulator is responsible for setting and enforcing relatively high-level regulatory principles. Firms are responsible for working out how their products will be delivered in conformity with those principles. As such, firms often do a lot of the legal heavy lifting. Indeed, in interviews some first-time CEOs were surprised to discover the regulator was not going to hand them a rulebook. Instead, firms were expected to translate law to their product. As one respondent described it, “new regulations come in and we have to try to interpret that to our world” (SB9). This is a complex process, especially for inexperienced firms. Fintech firms are typically innovating on the regulatory periphery. Their products are technically and legally complex. There are multiple potential interpretations of which laws and regulatory principles apply to a given innovation, and under what conditions it could be delivered legally. There are typically few or no templates for what compliance for their innovation ‘looks like’. It is here, though, where firms find the greatest flexibility for negotiating and tailoring requirements for their product.

Firms have to then test their interpretations of what is possible with the regulator. The complexity of the technologies involved often means lengthy firm ‘walkthroughs’ with the regulator to explain what is proposed. These kinds of conversations take place almost exclusively before the sandbox test, during earlier stages of the process: application, authorization, and negotiating the testing plan. By the time firms test, regulatory questions should already be resolved. According to respondents, in these conversations the FCA would rarely give definitive advice. Rather, the regulator would give broad guidance and informal steers. Firms must interpret this as meaning they can move forward, or have to rethink their regulatory strategy. FCA staff rarely provide regulatory ‘answers’ to uncertainties surrounding a product. Instead, the sandbox involves a firm-led process of cooperative, iterative legal interpretation. In effect: the creation of detailed standards of compliance for that product rather than the discovery thereof. As one respondent said:

“We are guiding the FCA really deep into our project. It’s like ‘give it to us, then we can talk about the gaps, you’re the one that’s going to have to do everything.’ I had to create a plan. I had to create the test cases. I had to create a risk register. All this documentation on an idea where that was no precedent. On something that didn’t exist, where no code had been written...We just had conversations” (SB1).

Interview findings are supported by questionnaire results. One-third of questionnaire respondents cited they wanted to apply to the sandbox to “help the FCA improve the regulation of products/services like ours”. The ability of the sandbox to lead to ‘superior’ supervision in the ways the FCA intended is thus heavily dependent on sandbox participants themselves. Legal interpretation and the development of detailed compliance standards comes from collaborative, pre-test regulatory conversations (Black 2002).

Firms generally speak about these conversations in positive terms. Such conversations help the firm and regulator to ensure products are — in their opinion — proportionately and correctly regulated on an individual and sector level. Yet, firms also make two prominent critiques. The first is that the demands the sandbox places on firms excludes those who have greatest need of its services. Firms who had their applications rejected, for instance, sometimes report it was because they cannot yet articulate the regulatory issues surrounding their product nor afford legal advice on this question. However, others contest that this is not a limitation but an essential selection criterion. The sandbox should only accept firms with the experience and capacity to meaningfully collaborate with the FCA on regulatory questions. The second limitation is to do with a lack of transparency about conversations had in the sandbox. There is no obligation for firms who fail at any sandbox stage to publicly account for what went wrong. Other actors, like other fintech firms or foreign regulators, are not able to learn about why certain products failed or what regulatory issues may have killed them. That learning is limited to the FCA and the sandbox firm involved.

That firms are heavily involved in refining the supervision of innovative products reflects Alaassar, Mention, and Aas’s study (2021, 7; see also: Choi and Lee 2020). Their study observes that developing a shared understanding of regulatory boundary conditions over new innovations is a central function of sandboxes. This function of sandboxes in practice, however, has important practical and normative implications which Alaassar, Mention, and Aas do not discuss.

#### Sandbox design needs to reflect capacity of firms in targeted sector to collaborate on supervision

On a practical level, sandboxes like the FCA’s rely not just on the capacity of the regulator, but also that of participants. Thus, in jurisdictions with smaller, less mature financial and start-up sectors, the sandbox might not be as effective. Further, some sandboxes are designed in ways which truncate the pre-test administrative stages (Buckley et al. 2020, 5). Findings here suggest that sandboxes with such a design may be less useful for regulatory learning and improvement compared to the FCA’s fintech sandbox.

#### Legal endogeneity may undermine the supervisory effectiveness of sandboxes

Normatively, findings here give yet more weight to critiques about the risks of sandboxes in regard to capture. Specifically, that the sandbox facilitates legal endogeneity (Edelman, Uggen, and Erlanger 1999). Firms play a leading role in developing proposals as to what compliance requirements for their innovation will look like in practice. This role can become problematic where it undermines rigorous risk management in the public interest (Devaney 2014, 60). These issues are not unique to sandboxes (Kwak 2013). Yet, they still warrant consideration, especially given the recent track record of principles-based financial regulation. As Ford (2017) writes, regulators allowing financial firms to work out the detailed requirements of regulation of innovative products was a key contributing factor to the Global Financial Crisis.

More uniquely to sandboxes, these findings suggest incumbent endogeneity is a barrier to innovation. Incumbents have set certain norms of compliance in ways which suit their technological set up (e.g., paper over digital). Firms in the sandbox allegedly have little influence to challenge these norms. The FCA certainly seemed unwilling to prioritise these newcomers over the preferences of established players (see also: Gilad and Yogev 2012). This behaviour is reminiscent of public choice theory’s contention that established industry players capture the regulatory process to create legal barriers to entry for potential competitors (Stigler 1971). In this case study, the barriers are not formal law but more informal norms and best practices.

#### Sandbox pseudo-experiments may make regulators overestimate their understanding of the innovation

Another normative implication concerns the risk of ‘pseudo-experimentation’. Legal literature sometimes implies a strict dichotomy between sandboxes for regulatory experimentation versus for product experimentation (van Gestel and van Dijck 2011). Findings here, however, reinforce that all sandboxes have the potential to facilitate some degree of ‘experimentation’. Experimentation, even if loose and informal, can still contribute to mutual learning for regulators and sandbox participants (Philipsen et al. 2020). Learning that likely informs business and regulatory decision-making surrounding an innovation in future (Allen 2019; Tan and Taeihagh 2021; Philipsen, Stamhuis, and de Jong 2021, 5). This kind of pseudo-experimentation, however, has the potential to become problematic and risky.

Tests in the FCA’s fintech sandbox are not scientific. They are not necessarily representative of an emerging innovation, its market applications, or its risk profile. Regardless, regulators may consciously or unconsciously treat sandbox test results as if they were scientific, rigorous, and representative. Regulators might, for example, use them to justify sector-wide reforms (Ranchordas 2021b). Indeed, this case study shows that the FCA does reference sandbox tests in their policy documents. The regulator does not explicitly suggest the tests are justification for sector-wide reforms, but this may be implied, and test cases could well shape the regulator’s thinking about innovations. Findings here suggest pseudo-experimentation may also pose problems from a business perspective. Firms share ‘lessons’ from their sandbox test with peers and stakeholders, potentially shaping business perceptions on the basis of one, perhaps unrepresentative, case.

#### More transparency about sandbox tests could strengthen the regulatory governance of innovation

Relatedly, the lack of transparency about the inner workings of sandboxes has already been criticised from a democratic legitimacy perspective. If the supervision of innovation is to be informed by sandbox conversations, it follows that political leaders, the general public etc. have a right to know what those conversations involved (Ranchordas 2021b, 20; Philipsen, Stamhuis, and de Jong 2021, 9). This study suggests transparency is also an issue from a business perspective. There would be a great deal of benefit to other firms being able to read about the internal conditions applied to sandbox tests, and the outcomes of tests; both those which succeed and those which ‘fail’. This information could prevent firms from trying to pursue innovations which do not work with regulatory frameworks. It could help firms to develop better internal risk management frameworks. Ethically, it would help to rebalance the unequal benefits provided to sandbox versus non-sandbox firms (Philipsen, Stamhuis, and de Jong 2021, 9). Indeed, a common recommendation from interviewed firms was that the FCA should host an alumni network for former sandbox firms to share information with each other and newcomers.

### Support

#### Sandboxes support innovation by connecting participants to the broader, mainstream market of customers, investors, partners, and other regulatory agencies.

In interviews, firms generally argue the sandbox delivers the advisory support intended. Advice has been instrumental in quickly earning necessary authorizations. Advice, however, is not the only form of support they gained through the sandbox. As, or more, important to facilitating innovation were the connections they gained to the mainstream financial market.

Firms can rarely pilot a product on any scale without partner institutions. In finance, partnerships with a bank and an insurer are often a baseline regulatory requirement. In fintech especially, partnerships with institutions to share financial data is vital to many products. Firms typically also need investors and consumers to be willing to participate in a real-world pilot. Thus, a firm’s ability to pilot a product relies on the buy in from a constellation of different stakeholders. This buy-in can be a bigger barrier to innovation than regulatory or technical issues.

Several interviewed firms said the sandbox helped them to overcome this barrier. It helped them make connections to clients, investors, partner institutions, and even foreign regulators in targeted markets. This kind of sandbox support could be highly direct. FCA staff would provide an introduction, or even speak to the third-party on the firm’s behalf.

This kind of support, however, operated within legal limitations and Anglo-sphere norms of regulatory conduct. The regulator, firms report, does not force partnership, merely facilitate them. Naturally, the sandbox alone cannot and does not solve all issues of access to data, investment capital, partnership, and customers (Butor-Keler and Polasik 2020). The FCA has similarly stated there would be limits to its support for innovators saying “it is about enabling change; it is not about picking winners” (UK FCA 2017a) and “there are no favourites, there are no free passes” (Woolard 2018a).

These findings align with those of Alastair, Mention, & Aas (2021). Those authors state the number one benefit of sandboxes for participants is a means to connect with the broader market ecosystem. Findings also reflect Buckley et al.’s (2020) argument that sandboxes are unhelpful in isolation. They can only contribute to innovation when they are embedded in broader market, societal, and regulatory institutions.

This contrasts with a popular image of sandboxes as insulating participants from the broader market. The sandbox metaphor comes originally from software design. There, a sandbox is a way to test code in isolation without risking impacts on a wider system (Butor-Keler and Polasik 2020, 623). In regulatory sandboxes firms are typically insulated from the market in their actual test through authorization conditions like customer limits. Yet, in the pre- and post- test stages, the regulator actively connects participants to the mainstream market.

Pragmatically, Buckley et al. (2020) are quick to note that not all regulators would necessarily be able to provide this kind of support. As discussed, the FCA has a competition mandate. Regulators focussed on consumer protection only might not be seen to have a legitimate basis to support innovators in these ways. Normatively, this kind of support risks ‘picking winners’; distorting markets and, thus, the innovation process (Knight 2019).

#### The sandbox helps reassure the broader market that adequate regulatory space for innovation already exists.

In addition to directly connecting firms to third parties, the sandbox helped more indirectly. A major issue firms cite is that third parties believe or fear the product is illegal. Therefore, they are unwilling to work with a fintech firm to run a pilot. This very often makes a pilot legally, practically, or commercially impossible. Through the sandbox, the FCA helped to reassure these third parties. For some firms, simply being accepted into the sandbox was enough for firms and their products to be seen as credible and legitimate. In other cases, their sandbox case officer reassured potential partner organizations the FCA considered their pilot test acceptable, and therefore this should be no barrier to the partnership or investment. Many firms said this kind of FCA ‘backing’ increased their access to investors and consumers by reducing their fears and uncertainties about the innovative technology.

“We wanted, banks, law firms, market infrastructure to take us seriously and if the regulator takes you seriously then the financial industry will take you seriously… [The FCA] started then to talk to other firms about us and say: why don’t you guys talk to [COMPANY] because they are doing xyz’. And then they started saying that to the banks. That’s when the credibility for us started to go up” (SB13).

“I dragged [INSURER] to the FCA and the FCA said: ‘you have got to do it now’. At which point [INSURER] said: ‘okay we realize we got to do it now’. So, they actually prompted a commercial decision on that side … It gave [INSURER] some confidence that the FCA had looked at it and that there weren’t going to be any regulatory headaches for them” (SB4).

It is unclear whether this kind of facilitation was something the FCA intended the sandbox to do. Yet, the FCA agrees that the sandbox has had these effects.

“Testing in the sandbox has helped facilitate access to finance for innovators…by providing more certainty to prospective partners and investors” (UK FCA 2017e).

“The sandbox is regulation that can give consumers the confidence to participate in the first place” (Woolard 2017) because “consumers are more likely to have confidence in a new product if it is within the regulatory framework” (Woolard 2016b).

In this way, the sandbox can be helpful even to firms who face no formal regulatory barriers to piloting products. The sandbox instead addresses barriers arising from market uncertainties about the legality of those products.

Alaassar, Mention, and Aas (2020; 2021) and Butor-Keler and Polasik (2020) made similar findings. Both state that participation in the sandbox led to greater access to investors and partners. Alaassar, Mention, and Aas attribute this to the legitimacy participation lends firms (2020, 7). Butor-Keler and Polasik (2020, 6) suggest investors and partners are more likely to become familiar with sandbox firms because participation gives firms positive promotion in the media. This study suggests it is both.

Study results, however, also reinforces concerns from legal and regulatory governance theorists that the sandbox is a potential tool for ‘riskwashing’ innovations (Omarova 2020). Riskwashing refers to making products appear low-risk through “superficial or narrow”, ingenuine risk assessment processes (Brown and Piroska 2021, 2). Study results here show that reducing the perception of risks is a conscious strategy by the FCA to promote innovation. There was no indication from analysis that the risk assessment process surrounding the sandbox, though, were more superficial than other authorization procedures. Indeed, most firms suggest the sandbox was quite demanding. However, the process itself was not necessarily significant in shaping risk perceptions of market shareholders. Firms report sometimes mere acceptance into a sandbox, even before a test, can be enough for stakeholders to see a product as having a manageable risk profile. Results from this case study alone cannot confirm nor refute that the FCA’s fintech sandbox is a tool for riskwashing. Yet, they should raise concerns about whether regulators can accept products into sandboxes without signalling to the market that they are necessarily safe and legal.

#### To provide consistent support, sandboxes need ongoing funding and dedicated, experienced staff.

While sandbox participants report broadly similar experiences of the instrument, this study implies that there are some differences between cohorts. Some respondent firms imply the first cohort was more exploratory and less administratively streamlined than those which came later. While the procedures are said to have arguably improved, some firms suggest the capacity of the Innovation Unit to provide support has declined.[[4]](#footnote-4) Notably, several firms report earlier cohorts were mostly staffed by experienced, relatively senior officers. Later cohorts have seen, some allege, a shift to less experienced, more junior officers. Firms dealing with less experienced officers cite this made the sandbox a less useful instrument than they had expected. Those officers were both less versed in the law and had less authority to take decisions about an innovation’s supervision, making regulatory conversations less meaningful.

These findings reinforce that the effectiveness of a sandbox lies not only in its design, but in the capacity of its implementing regulator. As Buckley et al. observe (2020, 6) sandboxes are not a “resource light” form of innovation supervision. They require adequate, consistent funding to ensure enough skilled and experienced staff members (see also: Brown & Pirsoka 2021).

On a normative level, scholars have raised concerns that sandboxes may devolve into a shallow technical exercise. Omarova (2020, 41), for instance, suggests that assessing whether a product is innovative and in the public interest requires regulators engage in “normatively thick analysis”. Omarova questions whether sandboxes allow for this in practice. Sandboxes might, rather, lead to casuistic, tick-box analysis which obscures the political, legal, and moral questions innovation raises. One could interpret the results of the current study as giving more empirical support for such concerns. The alleged evolution of the FCA’s sandbox can be seen as one toward as a move toward a narrower, more technical approach. An evolution enabled by a standardisation of procedures and necessitated by a transition to less experienced staff. This transition reflects a broader critique of principles-based regulation. Principles-based regulation is more complex to interpret than simple rules. For a principles-based approach to function effectively requires regulatory staff to be experienced and skilled. In an innovation context, this limitation is even more pointed as legal and technical complexities and uncertainties are more profound (Devaney 2014, 74). This is reflected in the current study. Firms report that the sandbox requires skilled, experienced officers to negotiate the nuances of principles-based regulation and how it applies to innovations. Thus: how effectively the sandbox supports innovation is a product of the skill and experience of the officers staffing it.

Table 3.1 Summary: The roles, contingencies, and risks of the FCA’s fintech sandbox in facilitating innovation

| Sandbox role | Facilitates innovation by… | Is contingent on… | Creates risks of… |
| --- | --- | --- | --- |
| Space | Temporarily removing regulatory barriers to product testingLowering the costs of product testing | Regulator mandate to create spaceBarriers posed by intersecting national and supra-national regulatory regimes not insurmountableRegulator reputation, and reputation management with innovative firms; market must be confident that ‘space’ exists, and regulator holds ‘open’ stance toward innovation | Leaving risks of innovation unsupervisedFailing to provide firms with adequate regulatory guidance, hindering innovation |
| Supervision | Improving how innovations are supervised at a sector levelImproving how individual innovations are supervised at the firm level, avoiding regulatory barriers through early intervention, collaborative conversations, and tailored licenses | Participant motivation and capacityPre-test sandbox stages allow for collaborative conversation with participantsTransparency about sandbox authorization conditions and test outcomesRegulator capacity: funding and experienced staff | Harmful regulatory capture, endogeneityRiskwashingInequityIllegitimate rulesLack of democratic accountability, transparency |
| Support | Providing advice that helps firms earn authorizations fastConnecting firms to third-parties required for a product testReassuring third-parties that the product test is legal | Regulator mandate to connect firms to marketRegulator reputation with market; established credibilityRegulator culture/norms toward connecting firms to marketsRegulator capacity: funding and experienced staffPre-test sandbox stages allow for collaborative conversation with participants and third-parties | RiskwashingInequityDistorting innovation, picking winners |

## Conclusion

Regulatory agencies worldwide have rapidly embraced regulatory sandboxes. Governments have been sold on the promise that this instrument can help to govern the risks of new technologies while facilitating innovation. Yet, we are only beginning to understand how well sandboxes fulfil this promise in practice.

Although it is not possible to generalize from one case study alone, the finding presented here indicate that sandboxes play multifaceted roles in facilitating innovation. The FCA’s fintech sandbox is popularly seen as a ‘safe space’; an instrument which lets firms test products, unburdened from regulatory interference. Findings here suggest that this space is more limited than generally assumed. Authorizations were still required in the sandbox, and the FCA had an only limited ability to offer dispensations from UK and EU financial law. Further, for some firms, the presence of regulation was not the primary barrier to innovation. The primary barrier was the lack of regulatory clarity about their technology. A lack of clarity undermined firm confidence, and the confidence of potential customers, investors, and partners, preventing firms from testing and keeping them out of the market. This case study suggests that, rather than a safe space free from regulation, the FCA’s sandbox is better understood as an active regulatory intervention. An intervention which brings innovators into the supervised, mainstream market through a combination of support, space, and iterative refinements of supervision.

Findings here build on prior research analysing the implementation of sandboxes. Findings reinforce that sandboxes are collaborative. Their ability to facilitate innovation thus relies on the attitudes, perceptions, and capacities of potential participants (Alaassar, Mention, and Aas 2020; 2021). Further, regulatory agency culture toward innovation, and their capacity, were once again shown to be essential to an effective sandbox (Butor-Keler and Polasik 2020). Findings from this study additionally draw out the more detailed mechanisms through which sandboxes facilitate (or fail to facilitate) innovation in practice. A central contribution is demonstrating the means through which sandboxes allow regulators to intervene in the promotion and governance of the innovation process. Specifically, to intervene in a ‘soft’, informal, introductory manner, in the absence of *sui generis* rules or policies toward the innovation (Mandel 2013).

The sandbox facilitates such interventions in several ways. First, the sandbox allows regulators to begin to intervene through shaping business perceptions of regulatory limitations on innovation. The sandbox, and its marketing, signalled to fintech firms, financial incumbents, and customers that the there was regulatory ‘space’ to test innovative products (fulfilling expectations of Zetzsche et al. 2017). The regulator was able to cultivate a reputation for being open to, and supportive of, innovation. Through individual tests, the regulator was able to further signal its interpretation and intentions toward a given innovation. This was communicated to participant firms but also to the broader financial sector. Second, the sandbox allows regulators to intervene early in the innovation process. No rules need have been broken for regulators to begin to have collaborative conversations with innovators (as anticipated by Gromova and Ivanc 2020, among others). These conversations help to develop a shared understanding how their specific innovation can be safely developed. Finally, the sandbox allows for informal experimentation not just for the regulator but also for participating firms. The regulator uses sandbox test cases to inform their eventual formal policies on certain technologies. Firms use the sandbox as a way to test various regulatory strategies with the agency. Rather than having perhaps one or two chances to apply for the right authorization the right way, firms are able to explore their options in more informal conversation with regulatory staff.

This does not imply the sandbox is an unproblematic success story. Findings made in the case study lend yet greater weight to normative concerns about potentially unsustainable financial costs, pseudo-experimentation, riskwashing, and capture. At times, scholars have implied these normative risks should be ‘designed out’ of sandboxes (Brown and Piroska 2021, 12; Omarova 2020, 53). That is, sandboxes should be made to function more like traditional regulation. This study, however, reinforces arguments that the informal, flexible, and collaborative nature of sandboxes like that of the FCA holds real advantages for innovation supervision. Not just the promotion of innovation, but the development of incremental, adaptive regulatory intervention (Allen 2019; Gromova and Ivanc 2020; Alaassar, Mention, and Aas 2020; Butor-Keler and Polasik 2020; Buckley et al. 2020; Fenwick, McCahery, and Vermeulen 2018; Marjosola 2019). What may be a more promising approach is to ‘design in’ institutions, procedures, and standards which mitigate these risks.

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1. The methodology for each of these is described in detail in Chapter 3 *Methodological Considerations*, but will be summarized here as they pertain to the chapter at hand. [↑](#footnote-ref-1)
2. All interview respondents came from small to medium sized companies, and therefore the case study is limited in its ability to present the views of large firms. [↑](#footnote-ref-2)
3. For example, some firms reported that when PSD2 regulation was passed at the European level they wanted to wait for the FCA’s interpretation. [↑](#footnote-ref-3)
4. Some firms experienced this first-hand, as they participated in multiple cohorts. Others reported what they had heard from industry peers. [↑](#footnote-ref-4)