

BUILDING FINTECH ECOSYSTEMS: REGULATORY SANDBOXES, INNOVATION HUBS AND BEYOND

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ABSTRACT

Around the world, regulators and policymakers are working to support the development of financial technology (fintech) ecosystems. As one example, more than fifty jurisdictions have now established or announced dedicated testing environments called “financial regulatory sandboxes” that temporarily exempt fintech companies from certain licensing requirements. Others have announced or established “innovation hubs,”

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sometimes incorporating a regulatory sandbox as one element. This article argues that innovation hubs provide all the benefits that the policy discussion associates with regulatory sandboxes, while avoiding most downsides of regulatory sandboxes, and that many benefits typically attributed to sandboxes are the result of inconsistent terminology, and actually accrue from the work of innovation hubs. The paper presents, as the first contribution of its kind, data on regulatory sandboxes and innovation hubs and argues that the data so far available on sandboxes does not justify the statement that regulatory sandboxes are the most effective approach to building fintech ecosystems. Regulatory sandboxes require significant financial contributions, sometimes new legislation, and intense regulatory risk management. They do not work as well on a stand-alone basis (i.e. without an innovation hub) either, while innovation hubs alone can provide more significant benefits in supporting the development of a fintech ecosystem. Consequently, regulators should rather focus their resources on developing effective innovation hubs, including, in appropriate cases, a sandbox as one possible element.

INTRODUCTION

How can policymakers best support the development of an innovative financial technology (fintech) ecosystem? Since 2016, an increasing number of financial regulatory and supervisory authorities have announced the establishment of “regulatory sandboxes” in order to encourage the development of their fintech ecosystems: According to the ADA Chair Sandbox database, the number of first-time financial regulatory sandbox announcements has climbed from only four in 2016 to thirteen in 2017 and twenty-three in 2018.¹ Regulatory sandboxes are safe spaces in which FinTech start-ups and other innovative enterprises can develop and test their innovations without being subject to the full extent of financial regulation.² Regulators typically seek to use a sandbox to bring more competition into

1. See *infra* Appendix A.

2. Dirk Zetzsche, Ross Buckley, Douglas Arner & Janos Barberis, *Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation*, 23 *FORDHAM J. CORP. & FIN. L.* 31, 64 (2017).

their financial services sector through more diverse and affordable product offerings for consumers.³

Sandboxes have proven very popular with financial regulators worldwide since the first was introduced in the United Kingdom by the Financial Conduct Authority (FCA) in 2016. Regulators in other jurisdictions quickly followed, including Australia, Hong Kong, Abu Dhabi, Canada, Denmark, Malaysia and Singapore. Many others have now joined the club. In total, we have tracked more than fifty jurisdictions around the world that have introduced financial regulatory sandboxes.⁴

Yet, for all the interest the FCA's regulatory sandbox has generated, with less than 120 participants since its inception,⁵ the sandbox has reached only a truly tiny portion of the total number of financial services firms in the United Kingdom and significantly fewer firms than the FCA has assisted through its innovation hub.⁶ More importantly, a significant share of young firms previously in the regulatory sandbox are now either insolvent or in liquidation.⁷ In other jurisdictions, like Australia, sandboxes have proven

3. *Id.* at 68.

4. We list regulatory sandboxes in the Appendix A only where we could verify the regulatory sandbox based on primary sources of law (i.e., legislation or financial regulation) accessible to us. Based on press releases, we estimate that at least another fifteen regulatory sandboxes exist or are about to be set up at the time of writing. *See infra* Appendix A.

5. According to the ADA Chair Sandbox database, since the first cohort of the FCA sandbox started, 117 firms have received sandbox treatment in the five cohorts of the FCA's sandbox so far. Compare this with the more than 60,000 licensed United Kingdom financial institutions. For an overview of sandboxed companies in the UK, *see Regulatory Sandbox*, FIN. CONDUCT AUTH. (last updated Dec. 10, 2019), <https://www.fca.org.uk/firms/regulatory-sandbox> [<https://perma.cc/FKZ5-UK7T>].

6. According to the FCA, it received more than five hundred requests for support over the eighteen-month period from the sandbox's creation to April 2018. *See* Lev Bromberg, Andrew Godwin & Ian Ramsay, *Fintech Sandboxes: Achieving a Balance Between Regulation and Innovation*, 28 J. BANKING & FIN. L. & PRAC. 314, n. 25 (2017).

7. According to the ADA Chair Sandbox database (excluding firms of the fifth cohort), seventeen of the sixty-three sandboxed firms incorporated between 2015 to 2018 that belonged to one of the first four cohorts (i.e., twenty-seven percent) are *not* operational ("not operational" includes firms under insolvency proceedings, dissolved firms, dormant firms, as well as firms whose websites and/or social media presences are not operated anymore), while a further four percent were acquired. We can only speculate about the operations of firms participating in the 5th cohort. *See also* FIN. CONDUCT AUTH., *THE IMPACT AND EFFECTIVENESS OF INNOVATE 5* (2019), <https://www.fca.org.uk/publication/research/the-impact-and-effectiveness-of-innovate.pdf> [<https://perma.cc/W4ZQ-QCYG>] (stating that approximately "80% of firms that successfully tested in the Sandbox are still operational," but including many well-established firms such as HSBC and Barclays).

unattractive for innovative firms.⁸ At the same time, some important financial systems—including most regulatory agencies in the United States,⁹ Germany, and Luxembourg—have refrained from introducing regulatory sandboxes. These experiences highlight the fact that a regulatory sandbox is only one of many ways a regulator can approach promoting and supporting a fintech ecosystem. Other approaches can include a range of efforts, focusing on research and development, human capital development, marketing, establishment of regulatory contact points, various forms of investment promotion including establishment of investment funds and matching schemes, creation of incubators and accelerators, and legal and regulatory reform. Together, these approaches make up the central elements of a supportive fintech ecosystem.

In addition to regulatory sandboxes, an increasing number of jurisdictions are developing “innovation hubs” in order to support the development of their fintech ecosystems. This article compares sandboxes with innovation hubs, arguing that in many cases innovation hubs are likely to be more effective in building a fintech ecosystem.¹⁰

A financial regulatory sandbox is most commonly a tightly defined safe space which automatically grants relief from certain regulatory requirements for those entities that meet the entry tests.¹¹ An innovation hub, in contrast, is simply a portal, a means by which industry can readily access regulators to discuss their proposed fintech innovations, gain some guidance on navigating regulatory requirements, and potentially seek dispensations or adjustments in the specific regulations to which they will

8. The ADA Chair Sandbox database lists seven firms that receive or have received sandbox treatment in Australia. The firms benefitting from sandbox treatment are disclosed at *Regulatory Sandbox: License Exemption Users*, AUSTL. SEC. & INV. COMM'N, <https://asic.gov.au/for-business/innovation-hub/fintech-regulatory-sandbox/regulatory-sandbox-licence-exemption-users/> [<https://perma.cc/PQ5A-4LQ2>].

9. See *infra* Section II.A.

10. For a definition of innovation hubs, see EUROPEAN SUPERVISORY AUTHORITIES, FINTECH: REGULATORY SANDBOXES AND INNOVATION HUBS 7 (2018), https://www.esma.europa.eu/sites/default/files/library/jc_2018_74_joint_report_on_regulatory_sandboxes_and_innovation_hubs.pdf [<https://perma.cc/34US-99HP>] (defining an innovation hub as “a scheme whereby regulated or unregulated entities can engage with competent authorities on FinTech-related issues and seek non-binding guidance on the conformity of innovative financial products, services, business models or delivery mechanisms with licensing, registration and/or regulatory requirements”); see also Zetzsche et al., *supra* note 2, at 38-39.

11. See *id.* at 45.

be subject.¹² While sandboxes tend to attract the headlines and attention, the real work of promoting and facilitating innovation in financial services tends to be done, in virtually all jurisdictions where it does occur, by some form of innovation hub.

Yet, of course, regulatory resources are always tightly constrained, which is especially true for most emerging and developing countries seeking to bolster innovation. Thus, it is the promise of facilitating real innovation in financial services without imposing real demands on these resources which accounts for sandboxes' remarkable global popularity with financial regulators. This is entirely understandable. However, we bear bad news: regulators who genuinely wish to promote innovation need to make the staff available to interact with industry, assist with advice and guidance to fintech startups seeking to navigate the regulatory maze, and, where necessary, issue bespoke waivers or other forms of dispensation of some regulatory requirements.

The numbers of entities in sandboxes are so limited because if the access regime is sufficiently broad to enable the participation of a wide array and number of participants, the likely result will be haphazard consumer protection. For this reason, sandbox entry conditions tend to be tight.¹³ Genuinely innovative regulation can only occur, it seems, on a case-by-case basis (as most financial regulators around the world have done with no-action letters, tailored dispensations and other such measures for many decades¹⁴).

12. See COMMISSION DE SURVEILLANCE DU SECTEUR FINANCIER, ANNUAL REPORT 39 (2017) [hereinafter CSSF ANNUAL REPORT], https://www.cssf.lu/fileadmin/files/Publications/Rapports_annuels/Rapport_2017/RA_2017_eng.pdf [<https://perma.cc/7LN7-CDHC>] (stating that an innovation hub includes a “constructive and open dialogue with the FinTech industry by making [CSSF staff] available for all entities wishing to present an innovative project. During these meetings, the CSSF provides the entities with advice and guidelines on the applicable regulatory framework in order to ensure that the project is developed in compliance with the regulations in force.”); JOINT ESA REPORT ON REGULATORY SANDBOXES AND INNOVATION HUBS, EUR. SUPERVISORY AUTHS. 5 (2018), https://www.esma.europa.eu/sites/default/files/library/jc_2018_74_joint_report_on_regulatory_sandboxes_and_innovation_hubs.pdf [<https://perma.cc/55NV-6TE9>] (defining an innovation hub as “a dedicated point of contact for firms to raise enquiries with competent authorities on FinTech-related issues and to seek non-binding guidance on the conformity of innovative financial products, financial services or business models with licensing or registration requirements and regulatory and supervisory expectations”).

13. See *infra* Section I.A.

14. See *infra* Sections III.C and III.D.

This is not to say regulatory sandboxes serve no purpose. For the relatively small number of entities that qualify, sandboxes do assist in the development process. And more importantly, because it is sandboxes that have been attracting the attention, having a sandbox sends a clear message to industry that a regulator is flexible and open to innovation in a way that having an innovation hub does not—in part because hubs are called different things in different places¹⁵—they lack the catchy descriptor that sandboxes carry. In our view, the most important function of any sandbox for a regulator is the strong message that having it sends to the market.

The FCA sandbox grew out of its innovation hub, which is termed Project Innovate.¹⁶ Likewise, in Australia, the Australian Securities and Investments Commission's (ASIC) sandbox grew out of its innovation hub, which long preceded the sandbox.¹⁷ However, many other jurisdictions attracted by the lower regulatory resources needed to operate a sandbox have implemented a sandbox without a broader hub.¹⁸ This strategy is unlikely to do much substantively to promote innovation, particularly in the large number of economies where there are limited numbers of financial and other startups: sandboxes tend to be most useful in those markets that already have a flourishing startup ecosystem but where those startups face regulatory challenges, barriers and uncertainties. In such cases a sandbox is very useful. In case where a jurisdiction is seeking to support the development of an innovation and startup ecosystem, innovation hubs are usually a better starting point. At the same time, pragmatically, if it is necessary to call what is in fact an innovation hub by the name of “financial regulatory sandbox” in order to build sufficient support then of course we are supportive of such strategies.

This article begins by analyzing the typical entry conditions and elements of sandboxes in Part I. Part II outlines their potential benefits and, Part III considers some of their risks and ways to address them. Part IV concludes with a series of policy lessons to be drawn from this analysis for regulators

15. See Zetzsche et al., *supra* note 2, at 39-43, for the diverging terminology.

16. See FIN. CONDUCT AUTH., *supra* note 5, at 9 (timeline of Project Innovate).

17. See AUSTL. SEC. & INV. COMM'N, REPORT 523: ASIC 'S INNOVATION HUB AND OUR APPROACH TO REGULATORY TECHNOLOGY (2017), <https://download.asic.gov.au/media/4270022/rep523-published-26-may-2017.pdf> [<https://perma.cc/95KR-3QF6>].

18. For further detail, see the listings of narrow sandboxes *infra*, Appendix A.

seeking to support the development of innovation and innovation ecosystems in their own jurisdictions. Finally, Appendix A sets out a detailed descriptive table of proposed or implemented sandboxes, and seeks to characterize each as either narrow or broad.

I. FINANCIAL REGULATORY SANDBOXES—ENTRY CONDITIONS AND ELEMENTS

A. Entry Test

Regulators around the world generally set up an entry test to determine whether a firm is qualified to “play in the sandbox.” This test typically has three general elements.

First, the test will ask whether the intended product or service is appropriate for the sandbox. For example, proposed products or services often must: (i) support the financial services industry,¹⁹ (ii) provide genuine

19. See FIN. CONDUCT AUTH., REGULATORY SANDBOX 7 (2015) [hereinafter FCA REGULATORY SANDBOX], <https://www.fca.org.uk/publication/research/regulatory-sandbox.pdf> [https://perma.cc/7WHT-YJJ8]; BANK NEGARA MALAY., FINANCIAL TECHNOLOGY REGULATORY SANDBOX FRAMEWORK 12 (2016) [hereinafter BANK NEGARA MALAYSIA FRAMEWORK], <http://www.bnm.gov.my/index.php?ch=57&pg=137&ac=533&bb=file> [https://perma.cc/BHP2-XEYZ]; see also AUTH. FOR THE FIN. MARKETS & DENEDERLANDSCHEBANK, MORE ROOM FOR INNOVATION IN THE FINANCIAL SECTOR §§ 1.1, 1.3.i (2016) [hereinafter DNB/AMF NEXT STEPS], <https://www.afm.nl/~profimedia/files/onderwerpen/innovation-hub/publicaties/2016/room-for-innovation-in-financial-sector.pdf>; BAKER & MCKENZIE, CLIENT ALERT, FINTECH UPDATE: THAILAND’S FINTECH REGULATORY SANDBOX § A.3 (2016) [hereinafter BANK OF THAILAND SANDBOX], https://www.bakermckenzie.com/-/media/files/insight/publications/2016/10/fintech-update/al_bangkok_fintechsandbox_oct16.pdf?la=en [https://perma.cc/5JLC-9TSE]; FIN. SUPERVISORY COMM’N, FINANCIAL INDUSTRY WORKS WITH THE TECHNOLOGY INDUSTRY ON FINTECH UPGRADE (2016) [hereinafter FIN. SUPERVISORY COMM’N TAIWAN], https://www.feb.gov.tw/en/home.jsp?id=47&parentpath=0,7&mcustomize=multimessage_view.jsp&d ataserno=201610170001&aplistdn=ou=bulletin,ou=multisite,ou=english,ou=ap_root,o=fsc,c=tw&dtabl e=Bulletin [https://perma.cc/4KCP-JWDU]. Bank Indonesia has not defined a rigid regulatory screening for entrants to enter into the sandbox yet; however, it has a clear goal to support the financial services industry, as stated in BANK INDONESIA, OPTIMIZING POTENTIAL, STRENGTHENING RESILIENCE—ANNUAL REPORT 108–110 (2016), <https://perma.cc/6XUY-GM69>; see also Press Release, Gubernur BI Resmikan Bank Indonesia Fintech Office (Nov. 14, 2016) (available at <https://perma.cc/ELR7-3A9F>) (stating the four objectives of the FinTech office establishment); ABU DHABI GLOBAL MARKET, CONSULTATION PAPER NO. 2 OF 2016 – POLICY CONSULTATION ON A REGULATORY FRAMEWORK TO SUPPORT PARTICIPANTS DEPLOYING INNOVATIVE TECHNOLOGY WITHIN THE FINANCIAL SERVICES SECTOR 13 (2016) [hereinafter ADGM GUIDANCE], http://adgm.complinet.com/net_file_store/new_rulebooks/a/d/ADGM_Consult_Paper_No_2_of_2016_

innovation (i.e., new solutions to existing or new problems),²⁰ and (iii) benefit consumers.²¹ The adequacy of the innovation requirement and its assessment by the competent authorities is debatable, given that it requires regulators to assess an innovation.²² This task is arguably beyond their skill

Reg_Framework_for_Fin_Tech_Final.pdf [https://perma.cc/TR6W-27NL]; ECON. DEV. BD. MAURITIUS, REGULATORY SANDBOX LICENCE—GUIDELINES FOR FINTECH PROJECTS 5 (2018) [hereinafter MAURITIUS GUIDELINES], <http://www.edbmauritius.org/media/1995/fintech-rsl-application-guidelines.pdf> [https://perma.cc/7BFV-MRJH].

20. See FCA REGULATORY SANDBOX, *supra* note 19; *FinTech & Innovation—Regulatory Sandbox Framework*, CENT. BANK OF BAH. [hereinafter CBB Guidelines], <https://www.cbb.gov.bh/fintech/> [https://perma.cc/6HX8-GBLL]; *Fintech Regulatory Sandbox Guidelines*, MONETARY AUTH. OF SING., FINTECH REGULATORY SANDBOX GUIDELINES 5 (2016) [hereinafter MAS GUIDELINES], <https://www.mas.gov.sg/-/media/MAS/Smart-Financial-Centre/Sandbox/FinTech-Regulatory-Sandbox-Guidelines-19Feb2018.pdf?la=en&hash=1F4AA49087F9689249FB8816A11AEAA6CB3DE833> [https://perma.cc/TPP5-ZK7D]; *Fintech Regulatory Sandbox Guidelines*, AUTORITI MONETARI BRUNEI DARUSSALAM, FINTECH REGULATORY SANDBOX GUIDELINES § 4 (2017) [hereinafter AMBD GUIDELINES], https://www.ambd.gov.bn/SiteAssets/fintech-office/FTSG_v1_final.pdf [https://perma.cc/S77D-R2JA]; EIDGENÖSSISCHES FINANZDEPARTEMENT EFD, ÄNDERUNG DES BANKGESETZES UND DER BANKENVERORDNUNG (FINTECH): ERLÄUTERNDER BERICHT ZUR VERNEHMLASSUNGSVORLAGE 33 (2017) [hereinafter EFD ERLÄUTERNDER BERICHT], <https://www.news.admin.ch/news/message/attachments/47046.pdf> [https://perma.cc/6TRD-JTBN]; BANK NEGARA MALAYSIA FRAMEWORK, *supra* note 19; DNB/AMF NEXT STEPS, *supra* note 19, § 1.1; BANK OF THAILAND SANDBOX, *supra* note 19; *Bank Indonesia Determines Fintech Operator in Regulatory Sandbox*, BANK SENTRAL REPUBLIK INDON. (2018), <https://www.bi.go.id/en/ruang-media/info-terbaru/Pages/BI-Menetapkan-Penyelenggara-TekFin-dalam-Regulatory-Sandbox.aspx> [https://perma.cc/CXF4-FMHA]; see *Taiwanese FinTech Regulatory Sandbox to Launch in April*, DIG. INNOVATION & GOVERNANCE INITIATIVE CMTE. (Mar. 28, 2018), https://www.digi.ey.gov.tw/en/News_Content.aspx?n=2CD8150D3764A46D&sms=9FA66FA17135CF2&s=036200688CAEE5CD [https://perma.cc/N66Z-5J9E]; ADGM GUIDANCE, *supra* note 19, at 13; MAURITIUS GUIDELINES, *supra* note 19, at 8.

21. See FCA REGULATORY SANDBOX, *supra* note 19; CBB Guidelines, *supra* note 20; MAS GUIDELINES, *supra* note 20; AMBD GUIDELINES, *supra* note 20, §§ 4, 7.2(a)(iii); BANK OF THAILAND SANDBOX, *supra* note 19; OTORITAS JASA KEUANGAN (OJK), RUANG UJI COBA TERBATAS (REGULATORY SANDBOX) TEKNOLOGI FINANSIAL [SPACE FOR LIMITED TRIAL (REGULATORY SANDBOX) OF FINANCIAL TECHNOLOGY] § 3(2)(d) (2017), <https://www.bi.go.id/licensing/helps/PADGREGSAND.pdf> (requiring customer benefit); Press Release, Otoritas Jasa Keuangan (OJK), OJK Drafts Regulations on Fintech Development (Oct. 6, 2016) [hereinafter OJK Press Release], <https://www.ojk.go.id/en/berita-dan-kegiatan/siaran-pers/Pages/Press-Release-OJK-Drafts-Regulations-on-Fintech-Development1.aspx> [https://perma.cc/RH97-TUJB] (stating that regulations concerning the regulatory sandbox “specify the minimum requirements that need to be satisfied, so the industry’s development will be supported by the legal grounds essential for attracting investments and protecting consumer interests towards efficient and sustainable growth”); ADGM GUIDANCE, *supra* note 19; MAURITIUS GUIDELINES, *supra* note 19, at 8.

22. See Bromberg et al., *supra* note 6, at 15.

set, and one that the ASIC in Australia expressly chose not to undertake.²³ Sandbox rules will also often require regulators to assess whether the product or service enhances market stability, transparency and consumer protection, or otherwise serves the broader financial system.²⁴ This is not a simple task for regulators.

Second, regulators often are required to assess whether there is a need for the sandbox, or whether the technology, service, or activity is already appropriately covered by existing law and regulation.²⁵

Third, regulators require adequate preparation for participants to enter the sandbox,²⁶ as they usually need to have entered the development stage (and have graduated from the project stage); understand laws and regulations governing their conduct; and engage in appropriate risk management.

Other sandboxes—for instance that of the Hong Kong Monetary Authority (HKMA)²⁷—are much less formal in entry requirements and

23. AUSTRAL. SEC. & INVS. COMM'N, REGULATORY GUIDE 257—TESTING FINTECH PRODUCTS AND SERVICES WITHOUT HOLDING AN AFS OR CREDIT LICENCE, 15, (2017) [hereinafter ASIC RG 257], <https://download.asic.gov.au/media/4420907/rg257-published-23-august-2017.pdf> [<https://perma.cc/YM7E-HPEH>].

24. See FCA REGULATORY SANDBOX, *supra* note 19, at 14.; MAS GUIDELINES, *supra* note 20, at 5-6; ADGM GUIDANCE, *supra* note 19, at 6-7; AMBD GUIDELINES, *supra* note 20, §§ 3.3, 7.2(a)(ii), 7.2(e), 8.4, 9.4(c), 10.3(a); ASIC RG 257, *supra* note 23; EFD ERLÄUTERNDER BERICHT, *supra* note 20; BANK NEGARA MALAYSIA FRAMEWORK, *supra* note 19; DNB/AMF NEXT STEPS, *supra* note 19, at 16; BANK OF THAILAND SANDBOX, *supra* note 19.; OTORITAS JASA KEUANGAN (OJK), *supra* note 21 (for an English summary of the requirements, see DELOITTE, NEW FINANCIAL SERVICES AUTHORITY (OJK) & BANKING REGULATIONS 4 (2017), <https://www2.deloitte.com/content/dam/Deloitte/id/Documents/audit/id-aud-ojk-banking-regulations-dec2017.pdf> [<https://perma.cc/3TRG-TZ8T>]); OJK Press Release, *supra* note 21 (stating that “[i]n terms of the scope of the Fintech draft regulations, the OJK is preparing rules about capital, business models, consumer protection and minimum risk management that Fintech companies should satisfy”); FIN. SUPERVISORY COMM'N R.O.C., *supra* note 19.

25. See DNB/AMF NEXT STEPS, *supra* note 19; BANK NEGARA MALAYSIA FRAMEWORK, *supra* note 19, at 6; FCA REGULATORY SANDBOX, *supra* note 19, at 7; MAURITIUS GUIDELINES, *supra* note 19, at 8.

26. See BANK NEGARA MALAYSIA FRAMEWORK, *supra* note 19, at 6; MAS GUIDELINES, *supra* note 20, at 6; AMBD GUIDELINES, *supra* note 20, at 10; Letter from Arthur Yuen, Deputy Chief Exec., H.K. Monetary Auth., to All Authorized Insts. 2 (Sept. 6, 2016) [hereinafter HKMA FSS], <http://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2016/20160906e1.pdf> [<https://perma.cc/ANH5-5KZW>]; DNB/AMF NEXT STEPS, *supra* note 19, at 4; FCA REGULATORY SANDBOX, *supra* note 19; MAURITIUS GUIDELINES, *supra* note 19, at 8.

27. For further detail on the sandbox's procedures, see *Fintech Supervisory Sandbox (FSS)*, H.K. MONETARY AUTH. (Nov. 18, 2019), <https://www.hkma.gov.hk/eng/key-functions/international-financial-centre/fintech/fintech-supervisory-sandbox-fss/> [<https://perma.cc/JR43-MJR7>]. As to regulatory preconditions, see *id.* (“The HKMA has not laid down an exhaustive list of the supervisory

operations, illustrating that, despite commonalities, the differences between sandboxes in different markets can be very great indeed, to the extent that—sometimes—what is labelled a sandbox may in fact operate more like an innovation hub.

B. Scope

The scope of coverage of individual sandboxes varies considerably.

1. Sectoral Restrictions

While Australia, the United Kingdom, Singapore, and the Netherlands do not limit the sandbox's scope to certain sectors,²⁸ Switzerland and Hong Kong restrict their sandboxes to authorized financial institutions working with or without fintech firms.²⁹ Arizona limits its scope to the three categories of money transmission, consumer lending, and investment advice, thereby excluding Insurance Technology (InsurTech) firms from participation.³⁰

Sectoral restrictions do little for fintechs and innovation, and should, if possible, be avoided. Such restrictions may only be appropriate for highly specialized sandboxes being operated to address shortcomings of the

requirements that may potentially be relaxed within the FSS environment. Banks and their partnering tech firms intending to access the FSS are advised to get in touch with the HKMA early. The HKMA stands ready to discuss with them individually on the appropriate supervisory flexibility that can be made available within the FSS.”).

28. Australian law instead limits the scope to testing of services providing financial product advice in relation to eligible products and dealing in eligible products. Austl. Sec. & Invs. Comm'n, *ASIC Corporations (Concept Validation Licensing Exemption)*, Instrument 2016/1175 § 5(1)(a)–(b) (Dec. 15, 2018); see also MAS GUIDELINES, *supra* note 20, at 4; AMBD GUIDELINES, *supra* note 20, at 5; BANK NEGARA MALAYSIA FRAMEWORK, *supra* note 19, at 2.; DNB/AMF NEXT STEPS, *supra* note 19, at 7.

29. The Swiss approach concerns deposits from the public (“Publikumseinlage”) which licensed banks tend to hold. See EFD ERLÄUTERNDER BERICHT, *supra* note 20, at 2. The Hong Kong approach is available for authorized institutions which wish to try out new technologies (“banking services”). HKMA FSS, *supra* note 26, at 1. For the Thai approach and discussion of the Bank of Thailand Sandbox, see Veerathai Santiprabhob, Governor of the Bank of Thailand, Japanese Chamber of Commerce Thailand Dinner Talk: The Thai Economy: The Current State and The Way Forward (Mar. 13, 2017), 6, https://www.bot.or.th/English/PressandSpeeches/Speeches/Gov/SpeechGov_13Mar2017.pdf [<https://perma.cc/9M33-DXMM>].

30. Paul Watkins, Evan Daniels & Stuart Slayton, *First in the Nation: Arizona's Regulatory Sandbox*, 29 STAN. L. & POL'Y REV. 1, 9 (2018).

regulatory framework with regards to certain innovations, like robo-advice.³¹ Restrictions entrench existing regulatory borders. In many cases, for example in risk management, technology initially developed for banks (fintech) may be of more use for insurance (InsurTech). Hence, allowing expansion into InsurTech is crucial. Sectoral restrictions are also counter-productive in that they reduce economies of scale and thus the value of an innovation.

At the same time, while sectoral restrictions are undesirable, in some cases a regulator-sponsored sandbox is, of necessity, limited by the respective regulators' scope of jurisdiction. For instance, in Hong Kong, the HKMA only has regulatory authority over banks and banking activities and its sandbox is therefore limited accordingly. The same applies to the sandboxes of the Hong Kong Securities and Futures Commission and Hong Kong Insurance Authority—both limited to participants within the sectoral regulatory jurisdiction of the respective regulator. In such cases, cooperation between the banking and market-conduct regulators may show the way forward. In the meantime such cooperation is established among Hong Kong regulators that provide for a “single point of entry, if needed, for pilot trials of cross-sector fintech products”³² (as in other similar cases, for instance the Netherlands). South Africa's sandbox announced in 2019 provides an example, where it expressly covers all sectors but can only do so by involving all the financial regulators (namely the Reserve Bank of South Africa, the Financial Services Conduct Authority, and the Treasury, together the newly established “Intergovernmental Fintech Working Group”).³³

31. See generally Wolf-Georg Ringe & Christopher Ruof, *A Regulatory Sandbox for Robo Advice*, EBI Working Paper (2018), <https://ssrn.com/abstract=3188828> [<https://perma.cc/6QTS-54V3>].

32. See H.K. MONETARY AUTH., *supra* note 27.

33. See Francois Groepe, Deputy Governor of the S. Afr. Reserve Bank, Opening Remarks at the Inaugural Intergovernmental Fintech Outreach Workshop: The Fintech Phenomenon: Five Emerging Habits That May Influence Effective Fintech Regulation 4 (Apr. 19, 2018), [https://www.resbank.co.za/Lists/Speeches/Attachments/520/The fintech phenomenon five emerging habits that may influence fintech regulation.pdf](https://www.resbank.co.za/Lists/Speeches/Attachments/520/The%20fintech%20phenomenon%20five%20emerging%20habits%20that%20may%20influence%20fintech%20regulation.pdf) [<https://perma.cc/97H3-RWYC>].

2. Regulated-Entity Restrictions

Treatment of existing regulated entities varies. While some regulators do not allow elements of existing entities into the sandbox,³⁴ others do: For instance, the HKMA only opens participation to authorized institutions (though potentially in conjunction with fintech firms³⁵), whereas others (namely Brunei, the Netherlands and Mauritius³⁶) only permit newer firms to enter, while existing authorized firms may benefit from no-action letters (which are not standard practice in some other countries, notably the United Kingdom³⁷), informal individual guidance on how to read the law, and waivers from certain mandatory requirements.

3. Limits in Targeting Customers

There are often limits with regard to the customers the sandbox participant is allowed to target. With the exception of the Australian class waivers, these limits vest discretion in regulators. For instance, the HKMA's sandbox³⁸ is open for services targeting "staff members or focus

34. This is particularly true for the Australian, Bruneian, and Swiss sandbox approaches that open unregulated space for unregulated entities only. However, the long-standing Australian practice of no-action letters for licensed entities may have lessened the need for further leniency for these entities.

35. See HKMA FSS, *supra* note 26, at 1.

36. See DNB/AMF NEXT STEPS, *supra* note 19, at 8, 10-13 (stating that already-established firms have the possibility to apply for a "partial authorization" or an "authorization with requirements" instead of a sandbox license); ADGM GUIDANCE, *supra* note 19, at 13-14; Mauritius Guidelines, *supra* note 19, at 5.

37. See *Regulatory Sandbox*, FIN. CONDUCT AUTH. (June 27, 2016), <https://wiki.harvard.edu/confluence/download/attachments/204380235/FCA%20Regulatory%20Sandbox%20Announcement.pdf> [<https://perma.cc/3JSS-FNYE>] ("This [no-action] letter would give firms some comfort that as long as they dealt with us openly, kept to the agreed testing parameters and treated customers fairly, we accept that unexpected issues may arise and we would not expect to take disciplinary action. We would only use this tool for cases where we are not able to issue individual guidance or waivers but we believe it is justified in light of the particular circumstances and characteristics of different sandbox tests. The letter would only apply for the duration of the sandbox test, only to our disciplinary action and will not seek to limit any liabilities to consumers. *We have not used this tool before, so we do not have examples of particular circumstances where these letters may be appropriate.*" (emphasis added)).

38. See HKMA FSS, *supra* note 26, at 1.

groups of selected customers”,³⁹ while the Monetary Authority of Singapore (MAS)⁴⁰ allows the applicant to choose the type of customer. ASIC⁴¹ treats services offered to retail and wholesale clients as eligible, while Arizona⁴² sets a hard cap of ten thousand Arizona customers. This is, however, only one side of the story, as all regulators retain the rights to impose additional restrictions. The more that retail clients comprise the focus of the fintech, the more restrictions regulators will typically impose. This aspect is emphasized by the United Kingdom FCA⁴³ which requires that the “type of customers should be appropriate for the type of innovation and the intended market, but also to the type of risks they are exposed,” while Bank Negara Malaysia may restrict “the participation of customers to a certain segment or profile of customers.”⁴⁴

Proportionality should underlie the sandbox approach. If wholesale clients are sufficiently sophisticated and skilled to understand the risks they take,⁴⁵ it may suffice if fintechs serving those clients are simply required to disclose their regulatory status. However, fintechs targeting retail clients should typically incur a higher degree of regulation.⁴⁶

The client type does not obviate systemic risk concerns, however, and we may expect those concerns to be aired more often when fintechs target large, typically wholesale, clients. For instance, a fintech delivering an entirely new risk calculation to most of the major banks in a market could well give rise to systemic concerns.

39. *See id.*

40. *See* MAS GUIDELINES, *supra* note 20, at 15; *see also* AMBD GUIDELINES, *supra* note 20, §§ 1.3, 10.3.

41. *See* ASIC RG 257, *supra* note 23, at 22-23.

42. *See* ARIZ. REV. STAT. ANN. § 41-5605(B)(2) (2018) (amended 2019) (up to ten thousand customers, who must be residents of Arizona). *See* section 41-5605(C)(1) for a possible extension to 17,500 customers.

43. *See* FIN. CONDUCT AUTH., DEFAULT STANDARDS FOR SANDBOX TESTING PARAMETERS (2017) [hereinafter FCA DEFAULT STANDARDS], <https://www.fca.org.uk/publication/policy/default-standards-for-sandbox-testing-parameters.pdf> [<https://perma.cc/WD7M-LJ3A>].

44. *See* BANK NEGARA MALAYSIA FRAMEWORK, *supra* note 19, at 5.

45. We take no position on the achievability of this proviso.

46. This case is made by Australian consumer protection activists. *See* Year Long Holiday for Financial Firms Leaves Consumers at Risk, FIN. RIGHTS LEGAL CTR. (Jan. 30, 2017), <http://financialrights.org.au/year-long-holiday-for-financial-firms-leaves-consumers-at-risk/> [<https://perma.cc/TY2R-7F99>].

4. *Time and Size*

The period a fintech is allowed to play in the sandbox is typically limited, either by a rule or on a case-by-case basis.⁴⁷ Periods range, in the first instance, from six months (United Kingdom, Brunei-Darussalam, India, Mozambique⁴⁸), to twelve months (Australia, Thailand, Malaysia⁴⁹), to twenty-four months (Ontario, Abu Dhabi, Arizona⁵⁰). Generally, extensions are available.

The more certain the sandbox conditions, the more likely they will suffice as a risk mitigating device, thereby reducing the importance of the time limit. For instance, the Swiss sandbox proposal (“Innovationsraum”) is not limited timewise.⁵¹ Under this proposal, as long as the fintech remains below the determined threshold of one million Swiss francs (CHF) in deposits from the public, it will not be subject to a licensing requirement.⁵² If the fintech has between one million Swiss francs and one hundred million Swiss francs in deposits from the public, it will be subject to a restricted license scheme with a lower regulatory burden.⁵³ However, such limits may not suit specific risks and opportunities or neglect systemic implications. In some cases, regulators should consider other thresholds, depending on the business model, including the number and type of clients.

47. See MAS GUIDELINES, *supra* note 20; DNB/AMF NEXT STEPS, *supra* note 19, at 16. In addition, the HKMA seems to practice a case-by-case assessment.

48. See FCA DEFAULT STANDARDS, *supra* note 43; AMBD GUIDELINES, *supra* note 20, Appendix B; RESERVE BANK OF INDIA, DRAFT ENABLING FRAMEWORK FOR REGULATORY SANDBOX 5 (2019), <https://rbi.org.in/scripts/PublicationReportDetails.aspx?UrlPage=&ID=920> [<https://perma.cc/T4R5-SN7U>]; Kátia Agostinho, *How FSDMOC Is Addressing Financial Sector Regulation Challenges: The Regulatory Sandbox Story!*, FIN. SECTOR DEEPENING MOZAM. (Sept. 17, 2018), <http://fsmoc.com/fsmoc-addressing-financial-sector-regulation-challenges-regulatory-sandbox-story/> [<https://perma.cc/94Y3-KKQQ>].

49. See Austl. Sec. & Invs. Comm’n, *supra* note 28, § 6(2); ASIC RG 257, *supra* note 20, at 20; BANK NEGARA MALAYSIA FRAMEWORK, *supra* note 19; BANK OF THAILAND SANDBOX, *supra* note 19, § A.4.

50. See *In re AngelList Advisors LLC* (Mar. 27, 2017) 40 OSCB 2807 (Can. Ont. Sec. Comm’n); ADGM GUIDANCE, *supra* note 19, at 10; ARIZ. REV. STAT. ANN. § 41-5605(A) (2018).

51. EFD ERLÄUTERNDER BERICHT, *supra* note 20, at 18.

52. *Id.*

53. *Id.*

B. Mandatory Provisions Subject to Waiver

Most sandbox rules do not specify which mandatory provisions may be lifted,⁵⁴ but some regulators do disclose the minimum level of compliance required inside the sandbox. For instance, Singapore's MAS is flexible regarding licensing fees, an entity's capital requirements, leadership requirements, credit rating, and relative size, and the organization of the entity relating to supervisory standards of financial soundness, risk management, and outsourcing. However, MAS rules are, appropriately in our view, strict on confidentiality of customer information, the fitness of management (in particular their honesty and integrity), handling of customers' monies and assets by intermediaries, as well as anti-money laundering and countering terrorism financing (AML/CTF) measures.⁵⁵

The Ontario Securities Commission, upon conditions that certain investors access only certain services, has granted relief in respect to audit requirements regarding financial statements, know-your-client requirements, suitability requirements, dispute resolution requirements, certain disclosure and reporting requirements, and prospectus requirements.⁵⁶ On the other hand, the HKMA requirements that may be waived in the sandbox are security-related requirements for electronic banking services and the timing of independent assessment prior to launching new technology services.⁵⁷ Most authorities sensibly refrain from stipulating an exhaustive list of requirements that may potentially be relaxed within the regulatory sandbox, preferring to retain flexibility.

C. Removing the Privilege

Sandbox rules typically specify grounds upon which the regulators will withdraw the privilege.⁵⁸ Reasons for dismissal from the sandbox include

54. See BANK NEGARA MALAYSIA FRAMEWORK, *supra* note 19; FCA REGULATORY SANDBOX, *supra* note 19; HKMA FSS, *supra* note 26, at 2 (HKMA does not want to provide "an exhaustive list of the supervisory requirements that may potentially be relaxed"); BANK OF THAILAND SANDBOX, *supra* note 19, § A.1 ("somewhat lenient rules").

55. See MAS GUIDELINES, *supra* note 20, at 10.

56. See *Angellist Advisors, LLC* (Mar. 27, 2017) 40 OSCB 2807 (Can. Ont. Sec. Comm'n).

57. HKMA FSS, *supra* note 26, at 2.

58. See ASIC RG 257, *supra* note 23, at 16; BANK NEGARA MALAYSIA FRAMEWORK, *supra* note 19, at 9; MAS GUIDELINES, *supra* note 20, at 7; AMBD GUIDELINES, *supra* note 20, at 6; ADGM

the risks of the venture exceeding the benefits, non-compliance with laws or regulatory impositions, and the purpose of being in the sandbox not being achieved.⁵⁹

The first reason reflects the objectives of the sandbox. The regulatory sandbox is made available *because* the regulator expects benefits to outweigh risks. Thus, the privilege should be removed as soon as it is established that the risks now outweigh the benefits. Regulatory risks may come from the fintech's conduct, so non-compliance is a natural reason to reconsider regulatory leniency. Likewise, if the regulator believes that granting privileges has not furthered innovation, it should "pull the privilege". And, finally, of course, firms should have the right to opt out, by either shutting down the business or moving into the regulated sphere.

II. POTENTIAL BENEFITS OF SANDBOXES

There are three principal potential market benefits of implementing a regulatory sandbox. The first is the message the establishment of a sandbox sends. The second is the boost to innovation. The third is how much the regulator stands to learn about innovations.

Interestingly, while all the focus globally seems to have been on sandboxes, Australia's experience clearly suggests that an innovation hub may well be a far more important regulatory reform and a far better way of achieving these three ends. However, it also remains true that terms like "Innovation Hub" or "Project Innovate" will not serve as effective messaging the way the image of toys in a sandpit does. Perhaps one day a psychologist will identify some failure of maturation in childhood development shared by many fintech entrepreneurs—but of course, not scholars, who are too grown-up for their own good. Or perhaps the term *sandbox* is simply fun, somewhat paradoxical, and memorable? Thus, if one has to call an innovation hub a sandbox in order to make it happen, we are not adverse. But it is important to make sure that it is the innovation hub elements which are included in order to maximize developmental benefits.

GUIDANCE, *supra* note 19, at 12; DNB/AMF NEXT STEPS, *supra* note 19, part 3; CBB Guidelines, *supra* note 20.

59. See CBB Guidelines, *supra* note 20 ("a critical flaw (i.e. a flaw that causes the risk to customers or the financial system to outweigh any benefits of the service . . .) has been discovered").

A. Market Message of Having a Sandbox

A regulatory sandbox signals a regulator's propensity to support innovation. In Australia, for example, ASIC allows the requirement of an Australian financial services license to be waived for entities admitted to its regulatory sandbox. However, this waiver is subject to restrictive conditions and eligibility criteria, which has resulted in very limited participation.⁶⁰ In fact there are only about six entities that have taken advantage of ASIC's sandbox. Comparison with the HKMA sandbox in Hong Kong suggests why this might be so, as this sandbox has no limit on the duration of the exemption period, no financial limits on the businesses that may apply, and a broader range of eligible products and services than does the ASIC one.⁶¹ At the insistence of the Federal Treasury in Australia, there is a proposal to expand the breadth of ASIC's sandbox, and the legislation to implement this is progressing slowly through federal Parliament.⁶²

Nonetheless—and this is perhaps the most important learning in the story of ASIC's sandbox—its sandbox seems to have been a success, precisely because it has sent a message to the industry and the market that ASIC is a flexible, approachable regulator open to dealing with innovative enterprises.

The number of entities in a regulator's sandbox is typically very small. For instance, in the pioneering sandbox established by the United Kingdom FCA, there were eighteen participants in cohort one.⁶³ At the time of writing, the ADA Chair Sandbox Database lists 117 firms for the United Kingdom and six firms for ASIC—truly a tiny proportion of financial services firms licensed in those countries.⁶⁴ An outlier in this regard is the

60. Lance Sacks, *Growing the Sandbox—Australia's enhanced Fintech regulatory sandbox*, CLIFFORD CHANCE (Nov. 7, 2017), https://www.cliffordchance.com/briefings/2017/11/growing_the_sandboxaustraliasenhance.html [<https://perma.cc/4QPF-ZCAB>].

61. See, e.g., *id.* at 6.

62. The *Treasury Laws Amendment (2018 Measures No 2) Act 2019* passed the House of Representatives in Australia on October 15, 2019. The bill is before the Senate at the time of this writing.

63. *Regulatory Sandbox—Cohort 1*, FIN. CONDUCT AUTH., <https://www.fca.org.uk/firms/regulatory-sandbox/cohort-1> [<https://perma.cc/8SWP-N7AB>] (last updated June 15, 2017).

64. *Sector Overview*, FIN. CONDUCT AUTH., <https://www.fca.org.uk/about/sector-overview/> [<https://perma.cc/Z5HV-L67M>] (last updated Apr. 9, 2018) (“The FCA is the conduct regulator for

Regulatory Sandbox Register by the CBB in Bahrain, which lists thirty-one participants currently active inside the sandbox framework compared to 385 fully regulated financial institutions;⁶⁵ this indicates a broader sandbox definition than we have applied in this article, perhaps highlighting an innovation hub labelled as a sandbox.

Our research suggests that sandboxes play two far more important roles than supervising the small number sandboxed entities, and both should appeal to developing countries' regulators.⁶⁶ First, establishing a sandbox sends a strong message to fintechs that the regulator is open to innovation.⁶⁷ The strength of the message, however, is highly time-specific and also—in our view—jurisdiction-specific. Any copy-cat sandbox project does not send as strong a pro-innovation signal as did the FCA's original sandbox. This is even more true in a world where almost fifty sandboxes have been created or announced around the globe.⁶⁸ Moreover, sandboxes are probably most effective in jurisdictions where there is already a significant number of innovation-focused firms (such as the United Kingdom, Hong Kong, Australia, and Singapore), and less effective in developing countries that lack a significant number of startups and innovation companies. In many cases, such developing jurisdictions are unlikely to attract desirable foreign participants by way of a sandbox, nor is a sandbox is not really the best way to encourage the development of domestic firms.

58,000 financial services firms and financial markets in the UK, and the prudential regulator for over 18,000 of those firms.”).

65. See *CBB Guidelines*, *supra* note 20; *Number of Banks and Financial Institutions—April 2019*, CENT. BANK OF BAHRAIN, <https://www.cbb.gov.bh/> [<https://perma.cc/9KR2-LFXM>].

66. See Zetzsche et al., *supra* note 2, at 101.

67. See Watkins et al., *supra* note 30, at 5 (discussing how the concentration of FinTech companies and a “benefit of live testing within a sandbox” may attract venture capital firms and give venture capital a reason to “leave its narrow ambit on the coasts to create a more diverse investment portfolio”); see also I. JENIK & K. LAUER, REGULATORY SANDBOXES AND FINANCIAL INCLUSION 4 (2017), <http://www.cgap.org/sites/default/files/Working-Paper-Regulatory-Sandboxes-Oct-2017.pdf> [<https://perma.cc/C2ZB-8YZ8>]. However, this message may also be sent by innovation hubs. See UNSGSA FINTECH WORKING GROUP AND CCAF, EARLY LESSONS ON REGULATORY INNOVATIONS TO ENABLE INCLUSIVE FINTECH: INNOVATION OFFICES, REGULATORY SANDBOXES, AND REGTECH 25 (2019), https://www.unsgsa.org/files/3515/5007/5518/UNSGSA_Report_2019_Final-compressed.pdf [<https://perma.cc/GH3M-DH5Z>] (“A dedicated innovation office with knowledgeable staff and a strong will to push things through was identified as a *key enabler of a pro-innovation culture*.” (emphasis added)).

68. See *infra* Appendix A.

Second, sandboxes provide an important learning opportunity for regulators, especially when coupled with an innovation hub. An innovation hub which integrates with a sandbox can change traditional dynamics, as the industry comes to see the regulator as an entity they can approach for assistance with regulatory challenges rather than a distant policeman to be avoided. ASIC, in a series of proactive moves, has managed to achieve this cultural shift with a combination of an innovation hub, a regulatory sandbox and its Digital Finance Advisory Panel, which meets quarterly and includes representatives from industry, industry associations, and all relevant regulatory agencies.⁶⁹ The planned structure in South Africa is similar, with the sandbox explicitly envisaged as a way for the regulator to learn about innovations in technology and business models in order to best develop proportional regulatory responses.⁷⁰

The numbers really highlight the effectiveness of an innovation hub relative to a regulatory sandbox. In ASIC's case, from March 2015 to December 2018, its innovation hub dealt with 380 entities, provided informal assistance and advice to 347 of those, and granted sixty-nine new credit licenses.⁷¹ Compare these figures with the six entities that, in a somewhat shorter period, took advantage of ASIC's regulatory sandbox. The experience seems to be that very few potential entrants qualified for the relatively strict sandbox requirements, and that nearly every potential entrant required the more bespoke approach that the hub facilitates. Furthermore, while an innovation hub is admittedly far more demanding of seasoned regulatory expertise and more risky to regulatory reputation—due to the need to issue an immediate assessment—than a sandbox,⁷² this

69. See *Digital Finance Advisory Panel*, AUSTL. SEC. & INVS. COMM'N (Jan. 5, 2019), <https://asic.gov.au/for-business/innovation-hub/asic-and-fintech/digital-finance-advisory-panel/> [https://perma.cc/X9K7-EYCK]; *'15-21 MR Innovation Hub: ASIC Update*, AUSTL. SEC. & INVS. COMM'N (Aug. 5, 2015), <https://asic.gov.au/about-asic/news-centre/find-a-media-release/2015-releases/15-211mr-innovation-hub-asic-update/> [https://perma.cc/8ZTG-7565]. Ross Buckley, one of the authors of this article, currently chairs the Digital Finance Advisory Panel of ASIC and the views herein are strictly his own, not ASIC's.

70. See Groepe, *supra* note 33, at 7.

71. *Progress Report, Mar. 2015-Dec. 2018*, AUSTL. SEC. & INVS. COMM'N'S INNOVATION HUB, https://download.asic.gov.au/media/4956819/innovation-hub_progress-report-infographic_dec18.pdf [https://perma.cc/RP4R-YB9U] See *supra* note 5 for data regarding FCA's Project Innovate.

72. This is often overlooked in policy papers. See UNSGSA, *supra* note 67, at 25 ("An innovation office is only as useful as the quality of the regulatory resources behind it. Innovation offices are often able to start up quickly with a core staff of two or three, then expand based on need and demand.

demand on regulator time is also a major advantage of a hub, as it facilitates a more interactive two-way knowledge exchange. This is vital for regulators in this field, as it keeps them right at the cutting-edge of developments in technology. The previous literature has accredited those "bidirectional educational benefits" to sandboxes alone.⁷³ In fact, innovation hubs are doing the same work, and we would suggest potentially much better.

ASIC has long been a flexible regulator willing to work one-on-one with industry participants, so in one sense its innovation hub is merely a continuation and formalization of past practices. The important thing, from their perspective, however, is that their sandbox and hub, in a way, have served to announce to fintechs outside Australia, in particular, that ASIC is open for business. This experience confirms the findings in some of our earlier research that the major reasons for any regulator to have a sandbox are (a) to send a message to the market about the regulator's flexibility and openness, and (b) for the regulator to learn about cutting edge developments from the industry in the dialogues that sending this message to the market tends to engender.⁷⁴ If the pro-innovation message is the sandbox's principal objective, there should be little reason to create one in financial centers known for their openness to innovation. This is particularly true if the pro-innovation message had already been sent without a sandbox, as Luxembourg, for example, has done by introducing the world's first innovation hub.⁷⁵

(By contrast, the design stage alone of a regulatory sandbox requires significantly more staff and even further resources in its implementation stage.) Innovation offices in both the UK and the U.S. have commenced with a lean approach and expanded as necessary.”).

73. See Michael Wechsler, Leon Perlman & Nora Gurung, *The State of Regulatory Sandboxes in Developing Countries* 25 (2018), <https://ssrn.com/abstract=3285938> [<https://perma.cc/9VKR-2HL5>]; see also Chris Brummer & Yesha Yadav, *Fintech and the Innovation Trilemma*, 107 GEO. L. J. 235, 291 (2019).

74. See Zetzsche et al., *supra* note 2, at 101.

75. Luxembourg's CSSF had created the first innovation department in 2014, sending a pro-innovation message without a sandbox. As a result of the innovation department, the CSSF has issued licenses to companies like Bitstamp Europe, BitFlyer Europe, Finologiee, PPRO and SnapSwap International, turning Luxembourg into a cryptocurrency and payments center. Since 2018, the Luxembourg House of Financial Technology (LHoFT), a public-private partnership, has provided the functions of an innovation hub in cooperation with the CSSF. The non-exhaustive list on LHoFT's website details approximately one hundred firms, including Ripple and LendInvest. See *Our Innovators, THE LHOFT*, <https://www.lhoft.com/en/our-startups> [<https://perma.cc/CG2S-ZPHS>] See also Zetzsche et al., *supra* note 2, at 40.

The United States landscape is different, and currently does not have an active federal regulatory sandbox.⁷⁶ In part, this is because of the view that, whilst the promotion of innovation matters, doing so may not be the proper role of the regulatory authority.⁷⁷ There is also a view that many of the federal securities laws are not amenable to being waived.⁷⁸ However, some efforts have gone into promoting innovation on a federal level, including the creation of innovation hubs, proposing a federal sandbox through a body other than the U.S. Securities and Exchange Commission (SEC), and sandboxes being implemented at the state level, with Arizona⁷⁹ and now Wyoming⁸⁰ leading in that sense.

The SEC includes the Strategic Hub for Innovation and Financial Technology (FinHub). The FinHub seeks to facilitate the SEC's "active engagement with innovators, developers and entrepreneurs" as the financial technology sector quickly evolves.⁸¹ The FinHub does not include a sandbox, with the SEC stating that its "role is not to hand out permission slips for innovation."⁸² Rather, the FinHub seeks to promote innovation through activities such as providing advice on digital marketplace financing and automating investment advice.⁸³

However, the view of the SEC regarding sandboxes is not necessarily unanimous in the United States. The U.S. Consumer Financial Protection Bureau (CFPB) has an innovation department that has proposed the implementation of a "Product Sandbox" which would "give companies regulatory relief when testing new financial products and services" and

76. See Hilary J. Allen, *Regulatory Sandboxes*, 87 GEO. WASH. L. REV. 579, 623-24 (2019) (providing detailed information on the possible forms of relief under US law).

77. Hester M. Peirce, Comm'r, U.S. Sec. & Exch. Comm'n, *Beaches and Bitcoin: Remarks Before the Medici Conference* (May 2, 2019), <https://www.sec.gov/news/speech/speech-peirce-050218> [<https://perma.cc/95XT-E5XG>].

78. For the latest development, see Brendan Pedersen, *OCC Lacks Legal Power to Create Fintech Charter, Court Rules*, AM. BANKER (Oct 21, 2019), <https://www.americanbanker.com/news/occ-lacks-legal-power-to-create-fintech-charter-court-rules> [<https://perma.cc/2QMP-PZYC>].

79. See Watkins et al., *supra* note 30.

80. See Financial Technology Sandbox Act, H.B. 0057, 65th Leg. (Wyo. 2019).

81. *FinHub*, SEC. & EXCH. COMM'N, <https://www.sec.gov/finhub> [perma.cc/89UK-JR7W].

82. Peirce, *supra* note 77.

83. *FinHub*, *supra* note 81.

would include the sharing of data with the CFPB.⁸⁴ They have also proposed implementing or revising their no-action-letter policy, global financial innovation network, and “Trial Disclosure Sandbox.”⁸⁵

B. Boost to Innovation and Competition

Sandboxes and innovation hubs are designed to promote innovation and competition.⁸⁶ First, the hope is that they will incentivize financial services firms to accelerate their digital transformation. Second, at the global level, sandboxes have added to the competition among financial centers seeking to become the world’s preeminent fintech hub. The sandbox, as an institution, challenges reluctant regulators without sandboxes and pushes them to publish and possibly review their dispensation policies.

The operation of both of these impacts can be seen with the “global sandbox” program established by the Global Financial Innovation Network (GFIN), an FCA-inspired coalition of regulators from around the world.⁸⁷ The program aims to ensure consistent treatment in sandboxes across jurisdictions, incentivizing digital transformation and reflecting the global operation of many financial services firms. The program also seeks to increase the appeal of the seventeen participating jurisdictions to incoming financial services firms with their broad network.⁸⁸

While sandbox conditions could lead to a race-to-the-bottom competition, on balance, the more likely outcomes from sandboxes at this stage will be beneficial, as most countries are in dire need of more competition within their financial services sector.⁸⁹

84. *Innovation*, CONSUMER FIN. PROTECTION BUREAU, <https://www.consumerfinance.gov/about-us/innovation/> [perma.cc/MX6E-YBKL].

85. *Id.*

86. *See* Wechsler et al., *supra* note 73, at 11-14, 24.

87. GLOBAL FIN. INNOVATION NETWORK, GFIN—ONE YEAR ON: THE GLOBAL FINANCIAL INNOVATION NETWORK REFLECTS ON ITS FIRST YEAR 4 (2019) [hereinafter GFIN Report], <http://dfsa.ae/Documents/Fintech/GFIN-One-year-on-FINAL-20190612.pdf> [https://perma.cc/P4E2-VWRD].

88. *Id.* at 5 (“providing innovative firms with the opportunity to interact and engage with a network of regulators simultaneously”).

89. *See*, for the US, Nicola Cetorelli & Philip E Strahan, *Finance as a Barrier to Entry: Bank Competition and Industry Structure in Local U.S. Markets*, 61 J. FIN. 437 (2006) (stating that more concentrated markets lead to greater difficulties in gaining access to credits).

C. Regulatory Learning

In a regulatory sandbox, regulators learn from the fintech startups due to their freedom to operate and communicate openly. This allows entrepreneurs to freely discuss their concerns without fear of putting their license at risk, and allows regulators to learn before major risks materialize. In the context of the GFIN, this learning occurs on an international level, with the network functioning as a forum for collaborative knowledge-sharing between firms and regulators.⁹⁰ Within the sandbox, dispensation efficiency is not curtailed by regulators being criticized for being too lenient, even though it places upon them an anti-dispensation incentive. In particular, when the conditions of the sandbox are specified clearly, entrepreneurs are assisted in arguing for dispensations.

On the other hand, an innovation hub does not deliver the same certainty as to regulatory lenience. So, entrepreneurs may be more reluctant to share all details of their business. However, seasoned regulators with a pro-innovation reputation will share information in an innovation hub that immediately assists firms to draft an adequate business plan. This results in a fast track to market with a full license, something that regulatory sandboxes cannot promise. This fast track to market requires a *quid pro quo* as to the details of the technology employed. Hence, in practice, an innovation hub prompts mutual learning similar to a regulatory sandbox.

III. RISKS OF SANDBOXES AND ALTERNATIVE APPROACHES

A. Maintaining a Level Playing Field

In designing a regulatory sandbox, maintaining a level playing field between regulated and unregulated entities may matter because otherwise, in the longer term, banks, insurers, and asset managers may suffer from a shortage of human and financial capital *and* of innovation that is drawn off to fintech startups. However, limitations with regards to time and money imposed on most firms in sandboxes at least diminish that risk.⁹¹ Regulators must strike a balance between encouraging innovation and protecting

90. GLOBAL FIN. INNOVATION NETWORK, *supra* note 87, at 3.

91. Bromberg et al., *supra* note 6, at 9.

clients⁹² and the financial system. *Regulated* financial institutions must be supported to innovate to put to use their advantageous data sets, expertise and experience. Existing institutions should enjoy the supervisory free space to support the development of innovative products and services that is extended to fintech startups.

Accordingly, regulators are well-advised to pair a regulatory sandbox with an appropriate approach to testing, piloting, adequate dispensation, and no-action policies for established regulated institutions. Sandbox rules and other practices should enable licensed and unlicensed institutions to benefit equally if they seek to develop innovative products or services.

Sandboxes are not necessarily appropriate in all circumstances. Sandboxes are but one way to enhance communication between regulators and innovative firms; other approaches include class waivers, piloting, and sandbox umbrellas.⁹³

B. Alternatives and Complementary Measures to a Sandbox

The principal complement to a sandbox, and the one we recommend, is an innovation hub. It supports the message of regulatory openness and flexibility that the sandbox sends. It also achieves the second and third benefits of a sandbox—the boost to innovation and competition and to facilitate regulatory learning—better than any sandbox, and it offers a further benefit over any sandbox, because it will typically benefit a much wider array of fintech firms than will fall within the relatively strict limits of any sandbox. The reason a hub probably does not achieve the first benefit of sending a message as effectively to the market is the huge interest and hype around sandboxes at the moment. This is the principal reason for a regulator to have both a hub and a sandbox. The hub does the heavy lifting of promoting innovation and competition (and it is heavy lifting because it will consume substantial regulator time), while the sandbox does the advertising role of promoting the jurisdiction as being open and receptive to fintech business. Both roles matter. In Australia’s case, the innovation hub preceded the sandbox by over a year, and experience has shown it to be the

92. See *id.* at 8.

93. Zetzsche et al., *supra* note 2, at 81-82. See *infra* Section III.C (class waivers) and Section III.D (testing and piloting regimes).

more effective regulatory innovation.⁹⁴ This likely also explains why some sandboxes seem to resemble innovation hubs more than they do sandboxes as described in this article.

There are, however, two other principal alternatives to a sandbox: class waivers and a testing and piloting regime. For the sake of completeness, because significant jurisdictions adopt both alternatives, we analyze both below.

C. Class Waivers for Fintech Testing

Australia is unique in that its sandbox grants a class waiver for fintech testing if certain eligibility criteria are met.⁹⁵ Class waivers are made by regulators to exempt tightly defined classes of people or products from the obligation of complying with regulatory requirements. ASIC ties its hands to a greater extent than other regulators by using more generalized exemptions, thereby providing a high degree of regulatory certainty. If certain conditions are met, a firm qualifies automatically for a waiver of specified regulatory requirements. These conditions are: The service or product may not be offered to more than one hundred retail clients (the number of wholesale clients is not restricted).⁹⁶ The test is limited to a period of twelve months and a total customer exposure of five million Australian dollars (A\$).⁹⁷ Further, the testing firm must have adequate compensation arrangements for losses (e.g., professional indemnity insurance), have dispute resolution processes in place, and meet pre-determined disclosure and conduct requirements.⁹⁸

The testing environment is limited to the provision of financial advice and the dealing in or distribution of financial products⁹⁹ and other regulated instruments.¹⁰⁰ The Australian class waiver does not extend to issuance of a product developed by the fintech, the lending of money to consumers, or the

94. See Austl. Sec. & Invs. Comm'n, *supra* note 28, § 6.

95. See *id.* § 5; ASIC RG 257, *supra* note 23, at 14.

96. *Id.*

97. *Id.*

98. *Id.*

99. As defined in *Australian Securities and Investments Commission Act 2001* (Cth) § 12BAA.

100. See Austl. Sec. & Invs. Comm'n, *supra* note 28, § 5(1); *National Consumer Credit Protection Act 2009* (Cth) §§ 7, 29.

operation of a managed investment scheme (including marketplace lending platforms).¹⁰¹ The class waiver also only extends to eligible products, which are defined to include:

- Deposit products, with a maximum A\$10,000 balance;
- Payment products, if issued by banks and with a maximum A\$10,000 balance;
- General insurance, for personal property and home contents up to A\$50,000 insured;
- Liquid investments, for listed Australian securities or simple schemes up to A\$10,000 exposure; and
- Consumer credit contracts with certain features, and for between A\$2,001 and A\$25,000.

While the class waiver provides notable certainty, the experimental space it creates is limited. Any successful fintech operation will outgrow these limits quite quickly, which raises the question of whether ASIC may grant an *additional* sandbox arrangement beyond these limits or grant a restricted license to class-waiver beneficiaries that exceeds the waiver limits following a case-by-case assessment. So as to retain the pro-competitive effects of the class-waiver, the possibility of combining several arrangements or licenses seems preferable, but the overall situation is presently uncertain.

A closer look reveals how different the class waiver is from a normal regulatory sandbox. ASIC does not engage with innovative firms prior to granting the privilege—the waiver is granted as a matter of law, rather than upon application.¹⁰² Innovation is not a prerequisite, nor does a knowledge exchange necessarily take place between privileged firms and ASIC. In fact, the Australian class waiver is a traditional approach cloaked in fintech-friendly terms. ASIC has done this, in part because of sensible doubts as to its expertise in assessing how innovative is a business model. Similar approaches are likely in other countries where regulators have similar concerns.¹⁰³

101. Cf. ASIC REG. GUIDE 257, *supra* note 23, at 17.

102. For the underlying legal provisions, see *id.* at 1.

103. Notably, the Swiss regulatory sandbox proposal exhibits characteristics similar to the Australian class waiver, exempting all banking business up to CHF 1 million in deposits, without requiring notice or application to Swiss regulator FINMA. See Press Release, The Federal Council,

ASIC also operates its innovation hub, which achieves the learning benefits derived by other regulators from operating sandboxes, and hosts regular events for the industry, at which ASIC learns of recent developments, and the industry in turn learns about ASIC's current regulatory thinking.¹⁰⁴

D. A Testing and Piloting Regime

The international popularity of sandboxes does not make them silver bullet solutions. Sandboxes are one form of “test and learn” methodology, with a variety of regulators using different forms of the “test and learn” approaches to innovation and new technologies. For example, the U.S. Office of the Comptroller of the Currency (OCC) and SEC, the German BaFin,¹⁰⁵ the Luxembourg Commission de Surveillance du Secteur Financier (CSSF),¹⁰⁶ both French regulators Autorité de Contrôle Prudentiel et de Résolution (ACPR) and Autorité des Marchés Financiers (AMF),¹⁰⁷ and the Philippines Central Bank, have expressly declined to create regulatory sandboxes. Instead, these regulators apply leniency to testing and piloting.¹⁰⁸ Other regulators use extensive piloting programs to substitute

Federal Council Wants to Reduce Barriers to Market Entry for Fintech Firms (Nov. 2, 2016), <https://www.admin.ch/gov/en/start/documentation/media-releases.msg-id-64356.html> [<https://perma.cc/Y92V-UE3P>].

104. See *Innovation Hub*, AUSTL. SEC. & INVS. COMM'N, <https://asic.gov.au/for-business/innovation-hub/> [<https://perma.cc/H7CQ-MGGL>].

105. Huw Jones, *EU Guidelines on Fintech to Include “Sandbox” Design Recommendations*, REUTERS (Sept 6, 2018), <https://ca.reuters.com/article/technologyNews/idCAKCN1LM25V-OCATC> [<https://perma.cc/D3P3-SBP8>] (BaFin president Felix Hufeld declined to give “little buckets and spades” to startups).

106. See CSSF ANNUAL REPORT, *supra* note 12, at 41.

107. Therese Torris, *French Finance Regulators Embrace Fintech*, CROWDFUNDINSIDER (Feb. 1, 2017), <https://www.crowdfundinsider.com/2017/02/95508-french-finance-regulators-embrace-fintech/> [<https://perma.cc/9M8X-NZWL>].

108. See OFFICE OF THE COMPTROLLER OF THE CURRENCY, SUMMARY OF COMMENTS AND EXPLANATORY STATEMENT: SPECIAL PURPOSE NATIONAL BANK CHARTERS FOR FINANCIAL TECHNOLOGY COMPANIES 10 (Mar. 2017), <https://www.occ.gov/topics/responsible-innovation/summary-explanatory-statement-fintech-charters.pdf> [<https://perma.cc/YF6T-L2TD>]; BUNDESANSTALT FÜR FINANZDIENSTLEISTUNGSAUFSICHT (BAFIN), ANNUAL REPORT 40-41 (2015), https://www.bafin.de/SharedDocs/Downloads/EN/Jahresbericht/dl_jb_2015_en.pdf?__blob=publicationFile&v=2 [perma.cc/HN9S-KREA].

for a regulatory sandbox.¹⁰⁹ The approach of the HKMA, although labelled a “sandbox” is probably closer to this approach than the sorts of sandboxes we have focused on above.

An exemption for testing and piloting is particularly useful for authorized financial institutions. They can test new technology and business models without filing for regulatory approval. The point where testing and piloting ends and regular activity starts can be challenging to identify. One characteristic for determining the begin of regular activity, however, will be an intention to permanently remain active in the market.¹¹⁰ A test lacks this feature; it is a one-time event, and whether the process is continued depends on the outcome of the test, which is entirely open. A pilot is a test where the organizational and financial resources have been devoted to the continuance of business and only some data for the decision are missing, which the pilot is designed to provide.

Where clients consent, the fintech could justify testing and piloting for some time. From a regulators point of view, for this reason, the clarity of a sandbox’s rules may well be attractive.

IV. CONCLUSION

We began this article with a question: What is the most effective way to support the development of an innovative fintech ecosystem? We have argued in this article that much of what regulatory sandboxes promise is delivered by innovation hubs which are likewise being established by

109. For instance, the Taiwanese Financial Supervisory Commission (FSC) used to run a FinTech Pilot Program that features many characteristics of a regulatory sandbox. *See* Press Release, Fin. Supervisory Comm’n., 金融與科技攜手, Fintech升級 [jīn róng yǔ kē jì xī shǒu shēng jí] (Sept. 9, 2016), http://www.fsc.gov.tw/ch/home.jsp?id=2&parentpath=0&mcustomize=news_view.jsp&dataserno=201609090002&aplistdn=ou=news,ou=multisite,ou=chinese,ou=ap_root,o=fsc,c=tw&dtale=News [perma.cc/2F9Q-Q4BV]. Now the country is implementing a regulatory sandbox through legislation. The FSC-proposed FinTech Innovation Experimentation Bill has been implemented since April 2018. *See The Financial Technology Development and Innovative Experimentation Act and three Act-authorized regulations implemented on April 30, 2018*, FIN. SUPERVISORY COMM’N (June 12, 2018), https://www.fsc.gov.tw/en/home.jsp?id=74&parentpath=0,2&mcustomize=multimessage_view.jsp&ataserno=201806120003&aplistdn=ou=bulletin,ou=multisite,ou=english,ou=ap_root,o=fsc,c=tw&dtale=Bulletin [https://perma.cc/2HLQ-CY86].

110. This requirement is the basis of various legal licensing tests, such as professionalism, commercial activity, pursuing an activity as a business, and so on.

regulators, in some cases simultaneously with the sandbox. If we define sandboxes narrowly, they are a set of entry requirements, compliance with which entitles fintechs to participate in a safe harbor freed of many regulatory requirements. Among the many advantages associated with sandboxes as so defined, only one—easier, cheaper and faster regulatory compliance through a tailored process of restricted authorization—is attributable to sandboxes.

The many other potential advantages of sandboxes are delivered at least as well by innovation hubs. These advantages include:

- the potential for the regulator to issue informal advice and directions regarding regulatory compliance;
- guidance on how to interpret requirements for a firm’s specific test;
- waiver or modification of any “unduly burdensome rule” for the purpose of the test; and
- “no action” letters where individual guidance or waivers are not possible, which provide an indication that disciplinary action will not be pursued for a finite duration if certain conditions are met (but do not offer any protection against liabilities to consumers).

At the same time, the data so far available does not justify the statement that regulatory sandboxes, on a stand-alone basis, are the most effective means to further fintech innovation. Given that regulatory sandboxes require significant financial contributions, and sometimes new legislation, we conclude that regulators should focus their resources on developing effective innovation hubs rather than sandboxes.¹¹¹ In many cases, the maximum benefit would be achieved by integrating an innovation hub and a sandbox together as part of a strategy to support the evolution of an innovative fintech ecosystem. We see particular benefits for innovation hubs—perhaps combined with a sandbox—in jurisdictions where there are few startups and limited innovation, as in many developing countries. In markets where there are existing fintech and startup ecosystems, sandboxes

111. See Simone di Castri & Ariadne Plaitakis, *Going Beyond Regulatory Sandboxes to Enable FinTech Innovation in Emerging Markets* (Jan. 23, 2018), <https://www.ssrn.com/abstract=3059309> (“Financial authorities, especially those with limited resources [in terms of funds, staff, expertise, and/or tools], should be careful not to prioritize sandboxes over other, more fundamental, infrastructure-building initiatives in their quest to enable digital finance.” (emphasis added)); JENIK AND LAUER, *supra* note 67, at 8 (“[R]egulators may need to consider less costly alternatives.”).

as defined throughout this article can prove very useful—even without an innovation hub.

The reason we draw this distinction between sandbox and innovation hub, therefore, is that we believe a narrowly conceived sandbox is particularly attractive to regulators because it promises to be pro-innovation without drawing unduly on regulatory resources. Conversely, setting up both a sandbox and an innovation hub demands commensurate regulatory resources and delivers pro-innovation benefits in line with this investment of resources. There is no such thing as a free lunch. A regulator cannot have its cake, without paying for it. Where resources are limited, regulators should focus their resources on developing innovation hubs in order to build fintech ecosystems, rather than sandboxes. And where a sandbox is developed, in order to gain the greatest benefits to ecosystem development, it should be integrated as part of an innovation hub.

APPENDIX A—SANDBOXES AROUND THE WORLD¹¹²

For the purposes of Appendix A, a “narrow” sandbox is one that is strictly for the purpose of providing regulatory relief to accepted entities. Often, narrow sandboxes exist within the framework of an innovation hub or equivalent. Narrow sandboxes are the most common. A “broad” sandbox is one that provides some of the services more commonly provided by an innovation hub.

Jurisdiction	Start	Narrow or Broad?	Authority
Abu Dhabi	Sept. 2018	Broad; it offers relief from financial regulations, as well as fintech solutions and international market access ¹¹³	Abu Dhabi Global Market (ADGM), partnering with ASEAN Financial Innovation Network (AFIN)
Australia	Dec. 2016	Narrow; but it exists within the framework of the “innovation hub” ¹¹⁴	Australian Securities and Investments Commission (ASIC)

112. This section draws on the ADA Chair Sandbox Database. For China, Israel, Jamaica, Sweden, Turkey, and Uganda, sandboxes have been proposed or announced according to newspaper articles, but we could not verify the existence of a sandbox with official sources, so we have not included them here.

113. See Press Release, Dubai International Fin. Centre, DFSA Regulatory Sandbox Accepts Seven New Firms into its Latest Cohort (Jan. 7, 2019), <https://www.difc.ae/newsroom/news/dfs-regulatory-sandbox-accepts-seven-new-firms-latest-cohort/> [https://perma.cc/HY6D-2EYJ]; Press Release, Abu Dhabi Global Market, Abu Dhabi Global Market Announces Launch of Digital Sandbox to Accelerate Financial Services Innovation and Financial Inclusion in the UAE and the Region (Sept. 17, 2018), <https://www.adgm.com/mediacentre/press-releases/adgm-announces-launch-of-digital-sandbox-to-accelerate-financial-services-innovation-and-financial-inclusion-in-the-uae-and-the-region/> [https://perma.cc/5DB3-7M6C].

114. See Media Release, The Honourable Scott Morrison, Launch of an Innovative Regulatory Sandbox for Fintech (Dec. 15, 2016), <http://sjm.ministers.treasury.gov.au/media-release/133-2016/> [https://perma.cc/E3B5-3MKL]; AUSTL. SEC. & INVS. COMM’N, *Fintech Regulatory Sandbox*, (Jan. 5, 2019), <https://asic.gov.au/for-business/innovation-hub/fintech-regulatory-sandbox/> [https://perma.cc/U79X-PG9S]

Jurisdiction	Start	Narrow or Broad?	Authority
Bahrain	June 2017	Narrow ¹¹⁵	Central Bank of Bahrain (CBB)
Bermuda	<i>Proposed</i> 2018	Narrow; but it exists within the framework of the “innovation hub” and encourages companies to use the it before eventually applying for entry into the Sandbox. ¹¹⁶	Bermuda Monetary Authority (BMA)
Brazil	<i>Proposed</i> June 2019	Narrow ¹¹⁷	Cooperation of Ministry of the Economy, Central Bank of Brazil, Securities Commission and Superintendent of Private Insurance
Brunei	Feb. 2017	Narrow ¹¹⁸	The Fintech Office

115. See Rad El Treki, *Central Bank of Bahrain (CBB) Launch Regulatory Sandbox for Fintech Firms*, AL TAMIMI & CO. (Feb. 2018), <https://www.tamimi.com/law-update-articles/central-bank-bahrain-cbb-launch-regulatory-sandbox-fintech-firms-2/> [https://perma.cc/3K42-LMHW].

116. BERMUDA MONETARY AUTHORITY, GUIDANCE NOTE—INSURANCE REGULATORY SANDBOX AND INNOVATION HUB (2018), <https://www.bma.bm/viewPDF/documents/2019-03-28-07-59-32-BMA-Insurance-Regulatory-Sandbox-Innovation-Hub-Guidance-Note.pdf> [https://perma.cc/2Q9F-DK73].

117. Press Release, Comissão de Valores Mobiliários, Comunicado Conjunto (June 13, 2019) (Braz.), <http://www.cvm.gov.br/noticias/arquivos/2019/20190613-1.html> [https://perma.cc/3LWR-YNWX].

118. See Press Release, Autoriti Monetari Brunei Darussalam, Fintech Regulatory Sandbox Guidelines (Jan. 1, 2017), https://www.ambd.gov.bn/SiteAssets/fintech-office/FTSG%20v1_final.pdf [https://perma.cc/BDE2-RNQY].

Jurisdiction	Start	Narrow or Broad?	Authority
Canada	Feb. 2017	Narrow ¹¹⁹	Canadian Securities Administrators
Denmark	Feb. 2018	Narrow; there is very limited regulatory relief. ¹²⁰	Danish Financial Supervisory Authority (the Finanstilsynet)
Dubai	May 2017	Narrow ¹²¹	Dubai Financial Services Authority
Fiji	<i>Proposed</i> 2017	Broad; it is planned to provide a platform to enable existing financial institutions along with interested parties to individually lodge an application or collaborate to explore new products and services ¹²²	Reserve Bank of Fiji

119. *CSA Regulatory Sandbox*, CAN. SEC. ADM'RS, https://www.securities-administrators.ca/industry_resources.aspx?id=1588 [<https://perma.cc/TE3C-DJC6>]; Autorité des Marchés Financiers, *The Canadian Securities Administrators Launches a Regulatory Sandbox Initiative*, CISION (Feb. 23, 2017), <https://www.newswire.ca/news-releases/the-canadian-securities-administrators-launches-a-regulatory-sandbox-initiative-614619474.html> [<https://perma.cc/BF49-HWZ6>]. For more about the CSA's authority to represent Canadian securities regulators, see Media Release, Austl. Sec. & Invs. Comm'n, ASIC Broadens Fintech Cooperation with Canadian Regulators (Dec. 12, 2017), <https://asic.gov.au/about-asic/news-centre/find-a-media-release/2017-releases/17-430mr-asic-broadens-fintech-cooperation-with-canadian-regulators/> [<https://perma.cc/9H2X-HJYN>].

120. *FT Lab*, FIN. SUPERVISORY AUTH., <https://www.dfsa.dk/en/Supervision/Fintech/FT-lab> [<https://perma.cc/9QD4-5PPF>].

121. *See Innovation—The DFSA and Financial Technology*, DUBAI FIN. SERVS. AUTH. (June 25, 2019), <https://www.dfsa.ae/Fintech> [<https://perma.cc/X8BG-N9PX>].

122. RESERVE BANK OF FIJI, QUARTERLY REVIEW 45 (2017), <https://www.rbf.gov.fj/getattachment/About-Bank/Organisational-Structure/Jan-2019.pdf?lang=en-US> [<https://perma.cc/VLR8-MC37>].

Jurisdiction	Start	Narrow or Broad?	Authority
Hong Kong (Fintech Supervisory Sandbox)	Sept. 2016	Narrow; but the Sandbox includes a chatroom to easily access consumer feedback, which may be considered broader than usual ¹²³	Hong Kong Monetary Authority (HKMA)
Hong Kong (Insurtech Sandbox)	Sept. 2017	Narrow ¹²⁴	Insurance Authority (IA)
Hong Kong (SFC Regulatory Sandbox)	Sept. 2017	Narrow ¹²⁵	Securities and Futures Commission (SFC)
Hungary	Dec. 2018 ¹²⁶	Narrow, ¹²⁷ but it sits within the framework of the “MNB InnoHub,” ¹²⁸ which is an innovation hub	Central Bank of Hungary

123. *Fintech Supervisory Sandbox, (FSS)*, *supra* note 27.

124. INS. AUTH., ANNUAL REPORT 2017-2018 54, https://www.ia.org.hk/en/infocenter/files/IA_Annual_Report_2017_18_English.pdf [<https://perma.cc/EHK3-36KY>].

125. SEC. AND FUTURES COMM’N, SFC REGULATORY SANDBOX (2017), <https://www.sfc.hk/web/EN/sfc-fintech-contact-point/sfc-regulatory-sandbox.html> [<https://perma.cc/69N4-LDAW>].

126. *Hungary: Central Bank Launches Regulatory Sandbox to Commence Operations from 2019*, PAYMENTS COMPLIANCE (Dec. 21, 2018), https://paymentscompliance.com/premium-content/research_report/hungary-central-bank-launches-regulatory-sandbox-commence-operations [<https://perma.cc/E3RG-PFCB>].

127. *Regulatory Sandbox*, MAGYAR NEMZETI BANK (MNB), <https://www.mnb.hu/en/innovation-hub/regulatory-sandbox> [<https://perma.cc/9ANC-RECG>].

128. *Services of the MNB InnoHub*, MAGYAR NEMZETI BANK, <https://www.mnb.hu/en/innovation-hub/#engedely> [<https://perma.cc/JC4J-K86L>].

Jurisdiction	Start	Narrow or Broad?	Authority
India	<i>Proposed</i> 2018	Undetermined; the proposals (by both the Reserve Bank of India ¹²⁹ and the Insurance Regulatory and Development Authority of India ¹³⁰) are in the early stages	Royal Bank of India and the Insurance Regulatory and Development Authority of India
Indonesia	Sept. 2018	Broad; aimed at facilitating communication between providers, monitoring development of businesses, and evaluating the offerings before they launch ¹³¹	Financial Technology office of the Bank of Indonesia
Japan	June 2018	Narrow ¹³²	Japan Economic Revitalization Bureau, the

129. ET Bureau, *RBI to Form Regulatory Sandbox for Fintech, Set Up Data Science Lab*, ECON. TIMES (Sept. 21, 2018), <https://economictimes.indiatimes.com/industry/banking/finance/banking/rbi-to-form-regulatory-sandbox-for-fintech-set-up-data-science-lab/articleshow/65894188.cms> [https://perma.cc/K5YF-AGW4].

130. PTI, *Irdai to Develop "Sandbox" Approach for Fintech-Related Products*, LIVEMINT (Sept. 19, 2018), <https://www.livemint.com/Industry/AjKydVIS6I68IH2Xq4mhDO/Irdai-to-develop-sandbox-approach-for-fintechrelated-prod.html> [https://perma.cc/5UKK-NJ9K].

131. IndonesiaGO Digital, *Bank Indonesia's Regulatory Sandbox of Fintech for the Assurance of the Consumer's Safety*, MEDIUM (Nov. 6, 2018), <https://medium.com/@indonesiagodigital1/bank-indonesias-regulatory-sandbox-of-fintech-for-the-assurance-of-the-consumer-s-safety-2497c07019e3> [https://perma.cc/Y7LP-LK9F].

132. *Opening of the Single Window of the Government of Japan for "Regulatory Sandbox Framework in Japan"*, JAPAN EXTERNAL TRADE ORGANIZATION (June 26, 2018), <https://www.jetro.go.jp/en/invest/newsroom/2018/3f4f6be41d8f9201.html> [https://perma.cc/9ZX5-XY74].

Jurisdiction	Start	Narrow or Broad?	Authority
			Government of Japan
Jordan	June 2018	Narrow ¹³³	Central Bank of Jordan
Kazakhstan	Jan. 2018	Broad; it also includes a fintech office ¹³⁴	The Astana International Finance Centre (AIFC) as a part of the Astana Financial Services Authority ¹³⁵
Kenya	<i>Proposed</i> Dec. 2018	Narrow ¹³⁶	Capital Markets Authority
Kuwait	Sept. 2018	Narrow ¹³⁷	Central Bank of Kuwait (CBK)
Lithuania	Sept. 2018	Narrow, but the Bank of Lithuania would	Bank of Lithuania

133. Media Release, Central Bank of Jordan, CBJ Unveils its Support to the Financial Technology (FinTech) Sector and Stresses on the Cryptocurrencies Ban, <http://www.cbj.gov.jo/DetailsPage/CBJEN/NewsDetails.aspx?ID=214> [https://perma.cc/H2XE-3JUJ].

134. ASTANA INT'L FIN. CTR. (AFSA), AIFC RULES NO. AFSA-F-PC-2019-0001, AIFC FINANCIAL TECHNOLOGY RULES (FINTECH) 12 (2019), http://afsa.kz/storage/files/01708ab7f0da4b9c/FINTECH_v1_AFSA-F-PC-2019-0001_15.03.2019.pdf [https://perma.cc/AN2V-8UAH].

135. Dene-Hern Chen, *Kazakhstan Bets Big on a Fintech Future*, OZY (May 1, 2018), <https://www.ozy.com/fast-forward/kazakhstan-bets-big-on-a-fintech-future/85183/> [https://perma.cc/7LWG-PSRX].

136. CAPITAL MKTS. AUTH., REGULATORY SANDBOX POLICY GUIDANCE NOTE (2018), https://www.cma.or.ke/index.php?option=com_phocadownload&view=category&download=471:draft-regulatory-sandbox-policy-guidance-note-2018&id=54:policy-guidance-notes&Itemid=202 [https://perma.cc/6ZZZ-L43B].

137. CENT. BANK OF KUWAIT, REGULATORY SANDBOX FRAMEWORK DOCUMENT (2019), <https://www.cbk.gov.kw/en/legislation-and-regulation/regulatory-sandbox/general-framework.jsp> [https://perma.cc/C64E-ST3V].

Jurisdiction	Start	Narrow or Broad?	Authority
		“cooperate” with participants and “provide consultations within its competence” ¹³⁸	
Malaysia	Oct. 2018	Narrow, but Bank Negara Malaysia acts as an “informal steer” (i.e., guiding and advising the applicant as an innovation hub would do) where sandbox provisions may not be applied because of existing regulations that appropriately target the firm and cannot be circumvented ¹³⁹	Bank Negara Malaysia
Malta	<i>Proposed</i> Jan. 2019	Broad; it is a wide, cross-sectorial approach with sandbox and fintech Innovation Hub as different “pillars” of a broader concept ¹⁴⁰	Malta Financial Services Authority (MFSA)

138. BANK OF LITH., RESOLUTION ON THE APPROVAL OF THE REGULATORY SANDBOX FRAMEWORK OF THE BANK OF LITHUANIA 1-2 (Sept. 19, 2018), https://www.lb.lt/uploads/documents/files/EN/our-functions/supervision-of-financial-institutions/sandbox/03-166_2018%2009%2019_EN.pdf [https://perma.cc/8AJM-USH7].

139. BANK NEGARA MALAYSIA FRAMEWORK, *supra* note 19, at 1-2.

140. MALTA FIN. SERVS. AUTH., MFSA FINTECH STRATEGY 12 (2019), <https://www.mfsa.com.mt/wp-content/uploads/2019/01/MFSA-Fintech-Strategy-visual.pdf> [https://perma.cc/G3TU-BVDN].

Jurisdiction	Start	Narrow or Broad?	Authority
Malta	Jan. 2019	Narrow; only for Virtual Financial Assets and Virtual Tokens ¹⁴¹	Malta Gaming Authority (MGA)
Mauritius	Oct. 2016	Narrow; this “sandbox” is designed to allow business activity only when there “exists no legal framework, or adequate provisions” in the law to address the activity being proposed ¹⁴²	Economic Development Board of Mauritius
Mexico	Mar. 2018	Broad; it is in the context of a whole fintech law, ¹⁴³ aiming at promoting financial innovation throughout the country ¹⁴⁴	CNSF

141. MALTA GAMING AUTH., GUIDANCE ON THE USE OF INNOVATIVE TECHNOLOGY ARRANGEMENTS AND THE ACCEPTANCE OF VIRTUAL FINANCIAL ASSETS AND VIRTUAL TOKENS THROUGH THE IMPLEMENTATION OF A SANDBOX ENVIRONMENT (2018), <https://www.mga.org.mt/wp-content/uploads/MGA-VFA-and-ITA-Sandbox.pdf> [<https://perma.cc/7YFR-5KM2>].

142. *Regulatory Sandbox License*, ECON. DEV. BD. MAURITIUS, <http://www.edbmauritus.org/schemes/regulatory-sandbox-license/> [<https://perma.cc/BF6E-LLSY>].

143. Ley Para Regular Las Instituciones De Tecnología Financiera, DIARIO OFICIAL DE LA FEDERACIÓN, (Sept. 3, 2018), http://www.dof.gob.mx/nota_detalle.php?codigo=5515623&fecha=09/03/2018 [<https://perma.cc/L6UR-TWW3>].

144. See DIEGO HERRERA & SONIA VADILLO, INTER-AM. DEV. BANK DISCUSSION PAPER NO. IDB-DP-573, REGULATORY SANDBOXES IN LATIN AMERICA AND THE CARRIBEAN FOR THE FINTECH ECOSYSTEM AND THE FINANCIAL SYSTEM 16 (2018), <https://publications.iadb.org/publications/english/document/Regulatory-Sandboxes-in-Latin-America->

Jurisdiction	Start	Narrow or Broad?	Authority
Mozambique	May 2018	Narrow ¹⁴⁵	The Bank of Mozambique
Netherlands	Jan. 2017	Neither broad nor narrow; this sandbox only “leverages the scope offered by the law when interpreting the rules,” meaning that regulations are interpreted generously but are usually still applied ¹⁴⁶	De Nederlandsche Bank
Nigeria	Mar. 2018	Narrow; but it is a part of the Financial Service Innovators Association of Nigeria ¹⁴⁷	Central Bank of Nigeria and Nigerian Inter-Bank Settlement System
Norway	<i>Proposed</i> Dec. 2018	Narrow, but it is under the supervision of FSA, which also	Finanstilsynet (Financial

and-the-Caribbean-for-the-FinTech-Ecosystem-and-the-Financial-System.pdf [https://perma.cc/NW59-6CVQ].

145. Agostinho, *supra* note 48; *Mozambique: Incubator Extends Access to Financial Services*, CLUB OF MOZAM. (May 18, 2018), <https://clubofmozambique.com/news/mozambique-incubator-extends-access-to-financial-services/> [https://perma.cc/WV8K-KFJT].

146. DNB/AMF NEXT STEPS, *supra* note 19 at 2, 7 (“[S]upervisors may offer tailored arrangements where the law offers scope, if it provides for any dispensations from certain regulatory rules.”).

147. Babajide Komolafe, *CBN, NIBSS Unveil Regulatory Sandbox to Empower Fintechs*, VANGUARD (Mar. 26, 2018), <https://www.vanguardngr.com/2018/03/cbn-nibss-unveil-regulatory-sandbox-to-empower-fintechs/> [https://perma.cc/7W2Y-KA8P]; CENT. BANK OF NIGERIA, EXPOSURE DRAFT OF THE NATIONAL FINANCIAL INCLUSION STRATEGY REFRESH (July 6, 2018), https://www.cbn.gov.ng/Out/2018/CCD/Exposure%20Draft%20of%20the%20National%20Financial%20Inclusion%20Strategy%20Refresh_July%206%202018.pdf [https://perma.cc/E4CS-FBWB].

Jurisdiction	Start	Narrow or Broad?	Authority
		has an “innovation hub” ¹⁴⁸	Supervisory Authority)
Philippines	Nov. 2017	Narrow ¹⁴⁹	Bangko Sentral ng Philinas (BSP) ¹⁵⁰
Poland	Oct. 2018	Narrow ¹⁵¹	Polish Financial Supervision Authority
Republic of Korea	Apr. 2019	Narrow ¹⁵²	Financial Services Commission (FSC)
Russia	Apr. 2018	Narrow ¹⁵³	Central Bank of Russia
Saudi Arabia	Feb. 2019	Narrow; ¹⁵⁴ in conjunction with a broader 2030 plan to	Saudi Arabian Monetary Authority

148. *Finansiell teknologi (FinTech)*, FINANSTILSYNET, (Jan. 8, 2019), <https://www.finanstilsynet.no/tema/fintech/> [https://perma.cc/BJ9A-8RTE].

149. Arai Garcia, *The Philippines: The World's Newest Tech Sandbox for The Third Web*, CONSENSYS MEDIA (Nov. 28, 2017), <https://media.consensys.net/the-philippines-the-worlds-newest-tech-sandbox-for-the-third-web-c67759c653bc> [https://perma.cc/6TP3-5T8A].

150. Je Gino-Gino, *BSP Using the Regulatory Sandbox Approach for FinTech Companies in the Philippines*, BITPINAS (Apr. 22, 2018), <https://bitpinas.com/news/bsp-using-regulatory-sandbox-approach-fintech-companies-philippines/> [https://perma.cc/7SM6-2QUE].

151. KOMISJA NADZORU FINANSOWEGO (KNF), RULES GOVERNING THE “REGULATORY SANDBOX” AT THE POLISH FINANCIAL SUPERVISION AUTHORITY PROGRAM 1, 3-4, https://web.archive.org/web/20190425182916/https://www.knf.gov.pl/knf/en/komponenty/img/Rules_Regulatory%20Sandbox_63545.pdf [https://perma.cc/82Y7-GSFK].

152. Press Release, Fin. Servs. Comm’n, Financial Innovation Support Act Passed in The National Assembly (Dec. 10, 2018), <https://www.fsc.go.kr/downManager?bbsid=BBS0048&no=131950> [https://perma.cc/G4HE-EBP4].

153. *Regulatory Platform*, CENT. BANK OF RUSS., http://cbr.ru/fintech/regulatory_platform/ [https://perma.cc/QD99-2GAF].

154. *About Us*, SAUDI ARABIAN MONETARY AUTH., <http://www.sama.gov.sa/en-US/Regulatory%20Sandbox/Pages/About-U.aspx> [https://perma.cc/U9FY-PVWB].

Jurisdiction	Start	Narrow or Broad?	Authority
		promote “financial inclusion” ¹⁵⁵	
Sierra Leona	May 2018	Narrow ¹⁵⁶	Bank of Sierra Leone
Singapore	Sandbox: June 2016 Sandbox express: Proposed Nov. 2018	<i>Sandbox</i> : Narrow ¹⁵⁷ <i>Sandbox Express</i> : Narrow; it is a particularly narrow but expediated sandbox designed for low risk ventures ¹⁵⁸	Monetary Authority of Singapore
South Africa	Proposed Feb. 2018	Broad; it is part of a proposed decision on “innovation facilitators,” defined as a collective term for innovation hubs, sandboxes and accelerators under the “SARB Financial Technology	South African Reserve Bank (SARB)

155. *SAMA Launches Regulatory Sandbox For Financial Institution’s and Fintechs*, SAUDI ARABIAN MONETARY AUTH. (Feb. 11, 2019), <http://www.sama.gov.sa/en-US/News/Pages/news11022019.aspx> [https://perma.cc/J7UX-C5BQ].

156. *Requesting Applications to Participate in the BSL Sandbox Program*, BANK OF SIERRA LEONE, https://www.bsl.gov.sl/BSL_Sandbox_Program.html (last visited June 25, 2019).

157. See MAS GUIDELINES, *supra* note 20, at 10.

158. *MAS Proposes Fintech Sandbox Scheme with Fast-track Approvals*, STRAITS TIMES (Nov. 14, 2018), <https://www.straitstimes.com/business/banking/mas-proposes-fintech-sandbox-scheme-with-fast-track-approvals> [https://perma.cc/4MN5-Y6NV].

Jurisdiction	Start	Narrow or Broad?	Authority
		(FinTech) programme ¹⁵⁹	
Spain	<i>Proposed</i> Feb. 2019	Broad; it is part of a larger fintech law that contains additional measures such as a direct communication channel to the regulator and other authorities (“ <i>comunicación ágil</i> ”) and a consultation mechanism to directly submit questions in case any doubts arise ¹⁶⁰	Banco de España
Sri Lanka	<i>Proposed</i> May 2018	Narrow ¹⁶¹	Central Bank of Sri Lanka
Switzerland	Aug. 2017	Broad; it includes public funds of up to one million Swiss francs and is part of	Swiss Federal Council

159. Press Release, S. Afr. Government, Reserve Bank Establishes Financial Technology (FinTech) Programme (Feb. 13, 2018), <https://www.gov.za/speeches/fintech-13-feb-2018-0000> [<https://perma.cc/J78C-84DC>].

160. Press Release, Ministerio de Economía y Empresa, El Gobierno Impulsa la Adaptación Delmarco de Regulación y Supervisión Financiera al Nuevo Contexto Digital, con el Anteproyecto de Ley que Regula el Sandbox (Feb. 22, 2019), http://www.mineco.gob.es/stfls/mineco/prensa/ficheros/noticias/2018/190222_np_digital.pdf [<https://perma.cc/CQ2W-ZHS7>].

161. Press Release, Cent. Bank of Sri Lanka, Sri Lankan FinTech Regulatory Sandbox (May 2, 2018), https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/press/notices/notice_20180502_sri_lankan_fintech_regulatory_sandbox_e.pdf [<https://perma.cc/CQ9N-XRFE>].

Jurisdiction	Start	Narrow or Broad?	Authority
		an “innovations area” ¹⁶²	
Taiwan	Apr. 2018	Narrow; noting that protection from regulations is discretionary ¹⁶³	Financial Supervisory Commission
Thailand	Dec. 2016	Narrow ¹⁶⁴	Bank of Thailand
United Kingdom	Dec. 2016	Narrow, but it sits within the broader framework of the Project Innovate	Financial Conduct Authority (FCA)
United States	<i>Proposed</i> July 2018 (not yet launched)	Narrow, but sits within the broader framework of the Office of Innovation ¹⁶⁵	Consumer Financial Protection Bureau (CFPB)
Arizona	07/2018	Narrow ¹⁶⁶	State Attorney General’s Office

162. Press Release, The Fed. Council, Federal Council Wants to Reduce Barriers to Market Entry for Fintech Firms (Nov. 2, 2016), <https://www.admin.ch/gov/en/start/documentation/media-releases.msg-id-64356.html> [https://perma.cc/Y92V-UE3P].

163. *Regulatory Sandbox and Competition of Financial Technologies in Taiwan*, COMPETITION POL’Y INT’L (Jan. 31, 2019), <https://www.competitionpolicyinternational.com/regulatory-sandbox-and-competition-of-financial-technologies-in-taiwan/> [https://perma.cc/R4PY-KGF7].

164. Jason Corbet, *Thailand Launches Regulatory Sandbox for Fintech Services*, ASIA BUS. L.J. (June 19, 2017), <https://www.vantageasia.com/thailand-launches-regulatory-sandbox-for-fintech-services/> [https://perma.cc/Y4DC-8VU5].

165. CONSUMER FIN. PROTECTION BUREAU, *supra* note 84.

166. Wendy Kearns & Andrew J. Lorentz, *Fintech Sandboxes—Update on State Approaches*, DAVIS WRIGHT TREMAINE LLP (Apr. 16, 2018), <https://www.dwt.com/blogs/payment-law-advisor/2018/04/fintech-sandboxes--update-on-state-approaches> [https://perma.cc/82CZ-3ALF].

Jurisdiction	Start	Narrow or Broad?	Authority
Washington, D.C.	<i>Proposed</i> Jan. 2019 (researching effective imple- mentation strategy)	Undetermined, although the Mayor's Order appears to have broad specifications ¹⁶⁷	Innovation Council, reporting to the Mayor
Wyoming	<i>Proposed</i> 02/2019	Narrow ¹⁶⁸	Wyoming Division of Banking

167. Press Release, Dep't of Ins., Sec. & Banking, Mayor Establishes the District of Columbia Financial Services Regulatory Sandbox and Innovation Council (Feb. 11, 2019), <https://disb.dc.gov/release/mayor-establishes-district-columbia-financial-services-regulatory-sandbox-and-innovation> [<https://perma.cc/Q2AW-9ST2>].

168. H.B. 0057 65th Leg. (Wyo. 2019).