WORKING PAPER

Going beyond regulatory sandboxes to enable FinTech innovation in emerging markets

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26 October 2017

Abstract

Although technological solutions promise access to cheaper and safer financial services, creating regulation that enables innovation in the FinTech industry remains a challenge. Regulators must protect the public interest while still providing an environment conducive to product and partnership innovation. In response, many financial authorities are introducing regulatory sandboxes to simultaneously give providers the opportunity to test their innovations while also giving regulators time to learn about the risks of the products. However, as our experience with mobile money demonstrates, sandboxes do not go far enough to create a truly enabling environment for FinTech innovation. To do so public-sector stakeholders need to address broad business barriers and consider the entire package of incentives faced by FinTech firms and investors. The authors provide a nine-item list of reforms beyond sandboxes for regulators to consider in order to create a holistic and multi-dimensional ecosystem for FinTech innovation.

The authors would like to thank Jake Kendall, Nick Cook, Ahmed Dermish, Jeremiah Grossman, David del Ser and Matt Grasser for their feedback on earlier versions of this paper.

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The promise of the FinTech revolution

The financial services industry has shifted from banks that happen to use technology to technology companies that offer financial services directly, as evidenced by the explosion of mobile money. Since 2001, when the Philippine telecommunication operator SMART launched its mobile money service with the Banco de Oro, hundreds of mobile money services have been rolled out worldwide. Today, there are over 180 million active mobile money accounts globally,[1] and mobile money providers process over 43 million transactions daily.[2]

Mobile money is just one part of the FinTech revolution[3], which promises to democratize the financial industry by increasing competition and choice, lowering transaction costs and prices, and deepening outreach and access. As one advocate notes: "Not only can FinTech make [financial] products and services more accessible, but it can also make them more affordable by lowering the cost of doing business for the financial institution, a savings which can be passed on to the consumer. Couple this with the near ubiquitous availability of affordable mobile phones and cellular networks, and a world where no one is excluded from the financial system may not be that far out of reach."[4]

However, regulation remains an obstacle for the FinTech revolution, a problem familiar to many technology innovators. Google's General Manager of Access, Kevin Lo, said once that "Regulation can get in the way of innovation. Regulations tied to physical infrastructure sometimes defer the investment altogether." Lo was referring to the challenges he faced in launching and scaling Google Fiber, a project to deliver super-fast, fiber-optic internet throughout the United States, which required overcoming all sorts of regulatory restrictions, from access to public rights-of-way to the ability to use utility poles to municipal zoning restrictions.

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[1] GSMA, State of the Industry Report on Mobile Money, 2016, at 17.
[2] Ibid at 56.
[3] The Economist, The Fintech Revolution, 9 May 2015.
[4] Accion, How Financial Technology is Changing Financial Inclusion, (last visited 12 October 2017).

While FinTech solutions promise access to cheaper and safer basic financial services, creating regulation that protects the public interest while still providing an environment conducive to innovation remains a challenge. In response, many countries are introducing regulatory sandboxes to simultaneously give providers the opportunity to test their innovations while also giving regulators time to learn about the risks of the products. However, as our experience with mobile money demonstrates, sandboxes do not go far enough to create a truly enabling environment for FinTech innovation. To do so public-sector stakeholders need to address broad business barriers and consider the entire package of incentives faced by FinTech firms and investors. Rather than jump on the regulatory sandbox bandwagon, financial authorities should take a holistic and multi-dimensional approach to supporting the FinTech ecosystem.

The need for clear, enabling regulation

FinTech firms, accelerators, and investors in emerging markets have many questions about the legal frameworks governing their products and services. As they confront traditional incumbents, FinTech firms and digital-first startups are often hindered by regulatory environments that are uncertain or present regulatory barriers.

Many firms lack clarity over how far they can go before they become subject to onerous compliance requirements or before they violate banking, payments, telecommunications, competition, or data protection regulations. While ambiguities may offer opportunities for regulatory arbitrage, most companies and investors would rather operate under a clear regulatory and supervisory framework.

Regulatory uncertainty can discourage innovation, increase time-to-market, limit access to finance, impact company valuations, and reduce product lifetime revenue. Evidence from other industries has demonstrated that delays due to regulatory uncertainty can increase time-to-market by nearly 33%, reduce lifetime product revenue by 8%, and reduce startups' valuations by 15% due to investors' and venture capitalists' wariness associated with regulatory uncertainty.[5]

In addition to uncertainty, regulatory barriers can also be an obstacle to innovation. Over the past ten years, we have witnessed how conservative or disabling regulatory regimes have slowed the deployment and adoption of technology-based financial products in emerging markets.[6] These barriers can not only slow, but also prevent, the uptake of mobile money as financial authorities struggle to keep pace with product innovation. While some regulators have allowed new providers, channels, and products to enter the market, in many countries the regulator's response has been more conservative.[7]

Our observations about the shortcomings of regulatory regimes have been validated by other experts. In 2015, the Economist Intelligence Unit (EIU) convened an advisory board composed of experts in policy, innovation, technology, and FinTech to discuss the impact of innovation on market fairness and how to balance promoting innovation with protecting the public interest. The advisory board found:

- "Regulators cannot keep up with the speed and effects of technological change.
- Many of today's fastest-growing companies are born out of regulatory inefficiencies.
- While disruptive innovators can deliver welcome new products and services, without appropriate regulatory oversight, these products and services may not serve the public interest.
- Broad and principles-based, rather than prescriptive, regulation is the way forward. Given how fast technology can evolve, policymakers should strive to implement forward-looking, broad regulations with clear intent."[8]

Even after 16 years since the launch of the first mobile money service, fewer than 50

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[5] See Ariel Dora Stern, Innovation under regulatory uncertainty: Evidence from medical technology, Harvard University, January 2014,.; and Deloitte, In the face of uncertainty: A challenging future for biopharmaceutical innovation, June 2014,. Both are cited in Financial Conduct Authority, Regulatory Sandbox, November 2015.
[6] See for example Simone di Castri, What could we learn from Nigeria barring MNOs from participating in the mobile money market? GSMA blog, April 2013,.
[7] Simone di Castri, Is Regulation Holding Back Financial Inclusion? A Look at the Evidence, GSMA Blog, 29 January 2015. See also Simone di Castri, Mobile Money: Enabling Regulatory Solutions, GSMA, February 2013.
[8] The Economist Intelligence Unit. Finding a Level Playing Field: Models and Frameworks for Policymaking in an Innovation-driven Economy. 2015.

countries have created a suitable regulatory framework for non-bank financial service providers to offer electronic payments.[9]

Regulatory sandboxes

Although the need for clear and enabling regulatory frameworks is well documented, balancing open frameworks with systemic wellbeing remains a challenge. Sometimes fintech firms want to introduce innovative products or services that are not suitable for outright regulatory approval because laws and regulations have been built around an old way of doing business. In a best-case scenario, the regulator's goal is to maintain a level playing field, while the innovator's is to disrupt the status quo. And in finance, like in virtually every industry around the world, technology is disintermediating traditional supply chains and, in turn, upending decades-old regulatory structures. Like Uber with the yellow-cab medallion taxi drivers in New York, and Tesla with the traditional car dealers in New Jersey, many fintech firms seek, through their business models, to remove the middleman (banks, insurance companies, investor advisors, etc.) and therefore face the challenge of dealing with obsolete regulatory frameworks that have been built around the businesses they aim to disrupt and are rooted in physical supply chain touch points.

To address this challenge, many financial authorities are introducing regulatory sandboxes. Sandboxes allow products to be (safely) brought to market by giving providers the opportunity to test innovations and regulators time to learn. Regulatory sandboxes enable financial innovators, both start-ups and established incumbents, to test solutions in a controlled environment for a set duration without immediately incurring all the usual regulatory costs associated with lengthy approval procedures or having to tweak their products to fit in a predefined, allowed legal category. Through sandboxes, the regulator exempts the firm from several initial requirements and thus, reduces operational variables

[9] Simone di Castri, 2015, *cit*.

and risks for the duration of the pilot. It should be noted, however, that such exemptions are not a 'free pass" to conduct any type of technology experiment, as most sandboxes still impose a range of security and customer safeguards including enhanced disclosures, dispute resolution programs, and customer compensation plans.[10]

The United Kingdom's Financial Conduct Authority (FCA) states that regulatory sandboxes aim to: "i) reduce the time and, potentially, the cost of getting innovative ideas to market, ii) enable greater access to finance for innovators, iii) enable more products to be tested and, thus, potentially introduced to the market, and iv) allow the FCA to work with innovators to ensure that appropriate consumer protection safeguards are built in to their new products and services."[11]

The sandbox approach has been implemented by United States, Australia, Singapore, United Arab Emirates, Hong Kong, Malaysia, Thailand, Indonesia, Russia, Bahrain, Switzerland and Canada – often with the express purpose of speeding up the product development and launch cycle in FinTech. Sandboxes are also at an early stage of development in Brunei, China, Brazil, India, Kenya, Mexico, Mozambique, Nigeria, Pakistan, the Philippines, Sierra Leone, and elsewhere.

To date, regulatory sandboxes have had varying degrees of success. In the UK, following a first cohort of eighteen firms in May 2016, twenty-four FinTech firms are currently in the testing phase in the second FCA sandbox, which launched on 19 January 2017. Applications have just closed for the third cohort.[12] However, outside of the UK, the impact has been limited thus far. Singapore[13] has only one recruit in its sandbox. In Canada[14] and Australia,[15] only two firms have been assisted in each jurisdiction. And in May 2017, both Malaysia[16]

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[10] Schan Duff, Modernizing Digital Financial Regulation – The Evolving Role of Reglabs in the Regulatory Stack, Aspen Institute, 12 July 2017.
[11] Financial Conduct Authority, 2015, *cit*.
[12] Financial Conduct Authority, Regulatory Sandbox Blog, (last accessed 12 October 2017).
[13] Monetary Authority of Singapore, Experimenting in the Sandbox Blog, (last accessed 12 October 2017).
[14] Ontario Securities Commission, Our Approach Blog, (last accessed 12 October 2017).
[15] Australian Securities & Investments Commission, Entities Using the Fintech Licensing Exemption Blog, (last accessed 12 October 2017).
[16] Heidi Vella, Malaysia: Central Bank Issues First Licenses for Fintech Sandbox, 30 May 2017.

and Thailand[17] admitted four companies, while the UAE accepted five.[18] Most of these companies are in an early stage of product testing, and it is too soon to tell what impact such sandboxes will have though the number of firms participating seems low.[19]

That said, other kinds of "test and learn" approaches have had success in the past. Over a decade ago emerging-market central banks such as the Bangko Sentral ng Pilipinas,[20] Central Bank of Kenya[21] and Bank of Tanzania[22] employed a "test and learn" approach to enable innovation in retail electronic payment systems to allow telecommunication operators to launch mobile money services. In 2007, when Safaricom approached the Central Bank of Kenya, it posed a quandary for regulators who were unsure how a financial service offered by a telecommunication operator would fit within the existing banking regulations. The instinct of the Central Bank of Kenya was to say "no" to a largely unknown, new financial service. Indeed, most central banks throughout the world followed this instinct at that time [and even later] when faced with the mobile money challenge."[23] Luckily for Kenyans, the regulator, was ultimately willing to overcome his concerns to provide an enabling environment for digital services to evolve, "first by issuing 'letters of no objection' to non-bank entities seeking to introduce mobile money services, and later by developing specific regulations clarifying the standards earlier adopted."[24] The progressive "test and learn" approach of the Central Bank of Kenya allowed Safaricom to bring M-Pesa to market; as of March 2016, M-Pesa had over 25 million active customers.[25]

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[17] Komkrit Kietduriyakul, Kullarat Phongsathaporn & Monica Triwiboonvanit, Thailand: The FinTech Wave and Regulatory Response, Financial Institutions Hub Blog, 3 August 2017,
[18] Neil Ainger, Abu Dhabi Global Market Admits First Five Fintech Start-ups into its Reglab Sandbox, CNBC Blog, 17 May 2017.
[19] Schan Duff, 2017, *cit*.
[20] Amamdo Tetangco, Mainstreaming Financial Inclusion as a Strategic Objective, Speech given on 6 June 2016, Bangko Sentral Ng Pilipinas Blog.
[21] Simone di Castri, A conversation with Professor Njuguna Ndung'u, Governor of the Central Bank of Kenya, on the critical policy issues around mobile money, GSMA Blog, August 2013. See also Brian Muthiora, Enabling Mobile Money Policies in Kenya, January 2015.
[22] Simone di Castri & Lara Gidvani, Enabling Mobile Money Policies in Tanzania, February 2014.
[23] Alan Gibson, FSD Kenya: Ten Years of a Market Systems Approach in The Kenyan Finance Market, August 2016.
[24] John Villasenor, Darrell West & Robin Lewis, The 2015 Brookings Financial and Digital Inclusion Project Report: Measuring Progress on Financial Access and Usage, August 2015.
[25] Vodafone M-Pesa reaches 25 million customers milestone, 25 April 2016, Vodafone Blog,

In 2013, when we interviewed Professor Njuguna Ndung'u, former Governor of the Central Bank of Kenya, he said

> "Careful assessment of risks through the "test and learn" approach along with the creation of products and systems that lower the risk profile of such services will allow enhanced access to financial services through innovation while maintaining systemic stability. Carrying out pilot tests of the innovative products before inception provides a chance to evaluate the success of that product in the mobile financial services environment and hence curbing the risks of failure. In addition, it is important to avoid the fear of the unknown since an extreme risk-averse attitude can lead to corner solutions. Specifically, the Central Bank of Kenya has taken a proactive stance and has been at the forefront in embracing innovations and creating an enabling environment for mobile financial services to flourish."[26]

From the regulators perspective, both the "test and learn" and the sandboxing approaches[27] have the potential to move regulators and financial service providers towards a more open and active dialogue. This dialogue provides an important opportunity for the regulators to learn about the specific risks of new technologies and products, which is critical for the development of proportional and risk-based regulations.

In only two years, regulatory sandboxes have gained significant attention in the international financial inclusion community as well as among the standard-setting bodies.[28] To quote Kabir Kumar of the Omidyar Network:

"We see sandboxes or reglabs as a part of a broader effort on the future of regulation in finance. We are living through a period of unprecedented innovation in finance, which remains one of the most heavily regulated sectors. Regulators need ways to understand new tech, products and business models, and FinTech innovators need a better dialogue

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[26] Simone di Castri, 2013, *cit*.

[27] Ivo Jenik & Kate Lauer, Regulatory Sandboxes and Financial Inclusion, CGAP, October 2017.

[28] See, e.g., Basel Committee on Banking Supervision, Sound Practices: Implications of fintech developments for banks and bank supervisors, August 2017; G20 Global Partnership for Financial Inclusion, Digital Financial Inclusion: Emerging Policy Approaches, 2017; Louise Malady et al., A Regulatory Diagnostic Toolkit (RDT) for Analysing the Regulatory Frameworks for Digital Financial Services (DFS) in Emerging Markets, February 2017,; Timothy Lyman, Six Tips for Policy on Disruptive Digital Financial Inclusion, 18 November 2016; G20 Global Partnership for Financial Inclusion, Global Bodies Advance Dialogue on Supervision of Digital Finance at the Third GPFI/FSI Conference, 26 October 2016,

with regulators."[29]

Regulation: Necessary but not sufficient

As promising as sandboxes are, our work on mobile money suggests that enabling regulatory frameworks are necessary but not sufficient for new business models and financial products to thrive. Even in markets where the regulator has removed regulatory barriers, telecommunications operators have often struggled to grow their mobile money business due to: lack of merchant acceptance, government resistance to digitizing payments, and poor connectivity in rural areas. For example, in the West African Economic and Monetary Union (Union Economique et Monétaire Ouest Africaine, UEMOA), six countries share the same central bank and the same regulatory framework but mobile money has only gained traction in Cote d'Ivoire, where the government has led the demand-side push by digitizing school fees and other public sector service payment platforms. In contrast, Peru has captured the top ranking in the Economist Intelligence Unit's Microscope for the last eight years and features both regulatory prompting and mobile phone proliferation, but mobile banking has yet to take off. A recent GSMA report co-authored by Harvard academics came to a similar conclusion, finding that other country-level variables such as the ease of doing business contributed to the success of mobile money services.

Establishing a broad environment that enables financial sector innovation is a complex matter, particularly in emerging market contexts. This complexity is even greater for FinTech than it was for mobile money because:

i. **Capital resources**: Whereas mobile money deployments are usually spin-offs of well-capitalized telecommunications operators (or banks, in a few cases), many promising FinTech firms are small companies or start-ups seeking venture capital so the

[29] Ariadne Plaitakis, The Regulatory Sandbox, Mondato Blog, 30 August 2016.

environment must be attractive to investors.

ii. **Hiring (and retraining) technical experts**: More than mobile money providers, FinTech firms need to scout and retain talent on the frontiers of cutting-edge technology. FinTech firms need a large quantity of coders, data scientists, and UI and UX experts, who tend to be scarce in emerging countries so the labor environment must be conducive.

iii. **Access to infrastructure**: While for many mobile money providers interoperability is not a priority, integration with banking or mobile money infrastructure – which banks and mobile money providers may attempt to block or limit to avoid competition - is a prerequisite for many FinTech firms to generate revenue.

iv. **Access to Data**: Very few mobile money providers have fully harnessed data analytics for business development, while extracting value from data is a core part of most FinTech firms' business.

There are many challenges to overcome beyond the regulatory environment if FinTech products are to support the public policy goal of financial inclusion. For FinTech firms to develop and test products, launch, scale and become successful, governments and regulators must recognize that the sandbox response is insufficient on its own to enable FinTech innovation.

Moving beyond regulatory sandboxes

There is a strong case for regulatory sandboxes where regulatory barriers or uncertainty do not allow innovative business models and products to be tested and brought to market. However, sandboxes are not sufficient to stimulate FinTech innovation and attract technologists and investors. As stated by Gregory Chen of CGAP in a recent blog: "The strength of sandboxes appears to be the speed of tests; but the limitation is that the tests are most often incremental. Transformative change may often require more complete regulatory reform."

To create a conducive environment for FinTech firms in emerging markets, policymakers should take a more comprehensive approach. Deloitte has identified six factors that contribute to the success of a FinTech ecosystem: (i) government support, (ii) enabling regulation, (iii) proximity to customers, (iv) proximity to expertise, (v) innovation culture, and (vi) attractiveness to foreign startups. Countries or cities that were ranked highest by Deloitte (based on other global indexes) included Hong Kong, London, New York, Silicon Valley, and Singapore.

The United Kingdom, Thailand and Australia share this point of view and have implemented additional measures to promote FinTech innovation alongside regulatory sandboxes including:

- Tax policy to support business creation, such as the lowering tax rates for newly established companies;
- Government subsidies and support to angel investors and their accelerators/incubators, for example reducing the paid-up capital requirement for certain financial services firms that plan to use FinTech;
- Simplification of company structures and formalities for start-ups;
- Provision of training and assistance to startups; and
- Conducive business regulation and protection of property rights.

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. For example, "providing clear guidance on cloud computing, data standards, and digital identities is just as important, if not more." Establishing a sandbox should not distract policy makers who are facing elementary regulatory challenges. Sandboxes do not guarantee for the mindset change that is necessary for regulators to keep up with the FinTech revolution.

Recommendations

To create a true enabling environment for FinTech innovation, we believe that governments must, from the get go, address the many additional challenges that can prove fatal to FinTech firms while also considering regulatory solutions such sandboxes. To catalyze FinTech innovation, these nine specific interventions should be considered:

SUPPORT MEASURES FOR FINTECH START-UPS

1. Direct support for FinTech: Governments can support and advise local entrepreneurs through conferences and events and support FinTech accelerators, incubators, and common work-spaces.
2. Early adoption: Government usage of FinTech solutions will create business opportunities for FinTech firms and encourage citizens and businesses to embrace new technology-based solutions.
3. Favorable fiscal policies: Policies such as lower tax rates for startups and subsidies for angel investors can encourage investment in new businesses.

DIGITAL AND FINANCIAL INFRASTRUCTURE

4. Digital connectivity: Weak connectivity and costly data will limit the potential market for FinTech products and services so government should support the development of telecommunications infrastructure.
5. Growth of digital financial services and interoperability in both the telecommunications and financial sectors: Policies that support broadening financial inclusion through digital financial services such as mobile money can unlock new business opportunities for FinTech firms and investors. Interoperability in particular can reduce costs and increase the addressable market for FinTech firms by enabling them to reach more customers with a single integration.
6. Open data, payment channel access, and open APIs: Enabling fair access to key telecommunications and payment channels (e.g., USSD bearer channels, ATM or agent networks, national switches) can foster FinTech-driven innovation. Governments can also encourage banks and other private-sector players to develop open APIs to make data more accessible thus allowing third-party developers to build next-generation products and reduce the time to market. They can also lead by

example by facilitating access to government databases related to identification (e.g., national identity data), and business and property registrations.

LEGAL FRAMEWORK

7. Improve ease of doing business: Government should streamline and reduce costs for opening and closing a business by establishing one-stop shops for business registration and licensing. In addition, they should enact flexible labor laws to facilitate attracting and retaining talent. Lastly, they should ensure protection of domestic and foreign investment through due process and contractual enforcement.
8. Simplify processing of personal data: The ability to collect, analyze, and share personal data is critical to FinTech innovation. While data protection rules are important, overly burdensome requirements (such as localization requirements) should be avoided.
9. Create an even playing field: Governments should make sure that appropriations rules allow FinTech start-ups to bid and be contracted by public agencies as well as ensure an even playing field for new competitors. Authorities should equally monitor anticompetitive behavior as the incumbents might be subverting the market with, e.g., predatory pricing or unfair bundling of services.

The authors

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