

MIDOCEAN UNIVERSITY

College of

Master of Financial Technology



**The Impact of Regulatory Sandboxes on FinTech Innovation, Funding,
and Regulatory Adaptation: A Multi-faceted Analysis**

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Introduction:

1– The title encapsulates the core focus of the research, which is to investigate how regulatory sandboxes influence various aspects of the FinTech ecosystem.

It highlights three key areas of impact:

- **Innovation** (the development of new FinTech products and services)
- **Funding** (access to capital for FinTech firms)
- **Regulatory adaptation** (how regulators learn and adjust their frameworks in response to new technologies).

The term "multi-faceted analysis" indicates that the study will delve into different aspects and interactions within this complex relationship, rather than a single, isolated effect.

2– Regulatory sandboxes are defined as a **controlled environment –to live test– new products, technology, or business models under the watchful eye of a financial regulator.**

This approach emerged as a significant tool in the financial sector, providing a "safe space" for businesses to experiment with innovative financial products, services, business models, and delivery mechanisms without immediately incurring all the normal regulatory consequences.

The concept of regulatory sandboxes gained global attention around **2015, spearheaded at scale by the United Kingdom's Financial Conduct Authority (FCA).**

The FCA's Project Innovate, launched in October 2014, aimed to promote competition in the interest of consumers and was reportedly **modeled after the U.S. Consumer**

Financial Protection Bureau's (CFPB) Project Catalyst, which dates back to 2012.

Project Catalyst focused on addressing concrete consumer issues, including improving financial access for unbanked consumers and making payment services more consumer-friendly, utilizing data-based decision making and flexible pilot testing.

Globally, sandboxes have been embraced for their potential to **enable regulators to carefully monitor the opportunities and risks associated with innovations**, while allowing firms to **bring innovations into the marketplace quickly and with less risk**.

They serve as a crucial **tool for developing evidence about how a new product, technology, or business model works and the outcomes it produces**, helping beneficial innovations reach the market by addressing regulatory concerns.

This evidence gathering can help regulators assess the impact of innovations, which can lead to the approval of beneficial innovations.

For example, the **Bank of Thailand used its regulatory sandbox to test a shared KYC and ID verification utility**, building on a previous sandbox effort that tested biometrics technology for eKYC to develop further guidance on AML/CFT compliance. Similarly, the **U.S. CFPB sandbox provided a no-action letter to Upstart for its AI and machine learning credit underwriting model** after reviewing its model through testing.

Sandboxes also serve as a **strong signal to market participants about the supervisor's openness to innovation**.

Research Problem:

The rapid evolution of financial technology ("FinTech") has created a complex environment where **existing regulatory frameworks often struggle to keep pace**. FinTech firms, particularly startups, encounter **significant regulatory barriers to entry**, including high compliance costs, fragmented federal and state regulations, and uncertainty about how traditional rules apply to novel digital services. This fragmented regulatory landscape, especially notable in the U.S. with its numerous federal and state regulators, poses a "daunting prospect" for FinTechs.

FinTechs exhibit a "dual identity": they operate as both **banking firms that require regulatory compliance and entrepreneurial, growth-oriented ventures**. This dual nature can lead to **conflicting signals to investors**, making it challenging for FinTechs to secure funding, especially given their reported high failure rates. Investors, primarily concerned with venture survival, face information asymmetries regarding FinTechs' quality due to this regulatory uncertainty.

Despite the global adoption of regulatory sandboxes (over 70 fintech-related sandboxes announced globally by April 2020), there has been **limited critical analysis of their models and actual effectiveness** in achieving stated goals. Policymakers face the challenge of **balancing the promotion of innovation with essential objectives like consumer protection and financial stability**.

There are concerns that an overly lenient sandbox could lead to deregulation or divert resources from more comprehensive policy efforts. Moreover, questions persist regarding whether sandboxes **create an uneven playing field**, granting an unfair advantage to participating firms over non-members. Addressing these issues requires a deeper understanding of sandbox design, operation, and their measurable impacts on both the regulatory environment and the FinTech ecosystem.

Research Objectives:

This research aims to delve into the multi-faceted impact of regulatory sandboxes:

- **Analyze the design and operational parameters of regulatory sandboxes globally**, identifying common features and variations across different legal systems and market maturities. This involves examining elements like eligibility criteria (e.g., "genuine innovation," "benefit to consumers," "readiness to test"), governance models (dedicated unit vs. hub-and-spoke), testing durations, and specific themes. The study recognizes that **no one-size-fits-all approach exists for implementing a regulatory sandbox**.
- **Evaluate the effectiveness of regulatory sandboxes in improving FinTechs' access to funding**, specifically examining the **direct positive relationship between sandbox membership and capital raised by FinTech firms**. The research is informed by findings that firms entering sandboxes saw a **significant increase of 15% in capital raised post-entry and a 50% higher likelihood of securing funding**. This is attributed to sandboxes helping to **reduce information asymmetries and lower regulatory costs or uncertainty for investors**.
- **Investigate how FinTechs' entrepreneurial orientation (EO) moderates the relationship between sandbox membership and funding**, assessing whether a strong EO **diminishes the positive signaling effect of sandbox participation**. This objective addresses the potential for EO rhetoric, which signals exploration and differentiation, to contradict the conformity signaled by sandbox membership, given investors' primary concern for FinTech survival.

- **Determine how FinTech venture size moderates the relationship between regulatory sandbox membership and funding**, exploring if **larger ventures benefit less from sandbox participation**. This considers whether increasing venture size leads to rigidities that make it harder to translate sandbox learnings into product adaptations, thus diminishing the perceived marginal benefit of sandbox membership for investors.
- **Explore how regulatory sandboxes serve as a tool for regulators to gather evidence on new products, technologies, and business models**, and how this evidence informs regulatory adjustments and capacity building. This includes the regulator's ability to "tweak regulations, assess impact of regulatory changes and then use this data for final policy making".
- **Examine the measures and safeguards used within regulatory sandboxes to protect consumers and ensure financial stability**, assessing how these balance with the objective of promoting innovation. For example, the FCA requires sandbox firms to abide by consumer protection policies and have a "fair exit strategy for consumers".
- **Identify the benefits and challenges experienced by FinTech firms participating in sandboxes**, including aspects like market readiness, compliance understanding, fostering partnerships, and dealing with the resource-intensive nature of sandbox participation. Sandboxes can provide guidance, restricted authorizations, and "no enforcement action" letters.

Importance of Research:

This research holds significant importance for various stakeholders:

- **Informing Policymakers:** By offering a critical analysis of regulatory sandbox models and their effectiveness, this study can **guide policymakers in designing sandboxes that effectively balance innovation with consumer protection and financial stability**. It can help regulators understand if sandboxes inadvertently **create an unfair advantage for members** and how to mitigate such risks. The insights will support regulators in adapting their frameworks and building capacity to oversee emerging technologies. The Bank of Thailand and Dubai's DFSA provide examples of regulators using sandboxes to develop new regulations in tandem with testing.
- **Guiding FinTech Firms and Investors:** The findings on how FinTechs' internal characteristics (like entrepreneurial orientation and venture size) interact with sandbox membership to influence funding can provide **valuable strategic guidance for FinTechs seeking investment**. It helps them understand how to **effectively communicate their value proposition to investors**, emphasizing conformity and compliance over excessive differentiation, especially when they are smaller ventures. This is particularly relevant given investors' primary concern for FinTech survival due to high failure rates. Sandbox membership can lend a startup firm credibility, making it easier to attract customers and funding.
- **Advancing Regulatory Practice:** The research contributes to understanding how regulators can **learn about emerging technologies and adapt their frameworks** in a dynamic environment. It reinforces the idea of sandboxes as an "experimental

environment where the regulator may tweak regulations, assess impact of regulatory changes and then use this data for final policy making". This also means approaching regulation with a focus on gathering "regulatory evidence".

- **Enhancing Financial Ecosystems:** Understanding the impacts of sandboxes can foster the development of **vibrant and innovative financial sectors**, leading to increased competition, lower costs, new customer services, and potentially greater financial inclusion. Sandboxes can also facilitate **intra-regulator cooperation** and attract both local and foreign firms to the market.
- **Contribution to Signaling Theory:** By analyzing the interplay of different signals (sandbox membership, entrepreneurial orientation, venture size) on funding outcomes, this research expands signaling theory. It challenges the traditional view that rhetorical signals are only detrimental if redundant, suggesting they can interfere with substantive signals even if they add new information, especially in contexts of high regulatory uncertainty.

Hypothesis:

The hypotheses are formulated based on **signaling theory**, which suggests that senders transmit signals to receivers to indicate otherwise difficult-to-observe qualities, especially in markets with information asymmetries.

- **H1: Regulatory sandbox membership has a positive relationship with the amount of funding FinTechs receive.**
 - **Rationale:** Sandbox membership acts as a **strong signal of regulatory compliance and legitimacy** to investors, reducing information asymmetries about the FinTech's quality and likelihood of long-term survival. It accelerates **market readiness** by providing clarity on regulatory frameworks and can lower compliance-related costs (e.g., for external consulting), thereby **saving resources** for the firm. For example, studies on the UK FCA sandbox found a **15% increase in capital raised post-entry and a 50% higher likelihood of securing funding** for participating firms.
- **H2: Higher entrepreneurial orientation (EO) weakens the positive relationship between regulatory sandbox membership and the funding amount.**
 - **Rationale:** FinTechs have a dual identity—they are both entrepreneurial and banking firms. While sandbox membership signals **conformity with regulatory frameworks**, a high EO (characterized by innovativeness, proactiveness, and risk-taking) signals a **proclivity toward exploration and differentiation**.

- These two signals can be perceived as inconsistent by investors. Investors, particularly concerned with the high failure rates of FinTechs, prioritize survival over high-risk, high-reward differentiation. Therefore, **EO rhetoric might undermine the signal fit of sandbox membership** because it implies increased performance variance that could endanger survival, contradicting the stability implied by regulatory compliance.
- **H3: Venture size moderates the relationship between regulatory sandbox membership and funding amount, such that the relationship is less positive for larger ventures.**
- **Rationale:** While larger firms generally signal more resources and higher survival chances, the **purpose of most regulatory sandboxes is to provide controlled testing for novel innovations, often benefiting smaller, less established firms more significantly**. As FinTechs grow larger, their structural rigidities may make it more challenging to efficiently translate sandbox learnings into product or service adaptations. This can lead investors to perceive less marginal benefit from sandbox membership for larger firms, as the relative value of regulatory guidance and waivers might diminish compared to smaller ventures.

Research Questions:

These questions directly address the research problem and guide the investigation into the outlined objectives:

- **What is the direct impact of regulatory sandbox membership on the funding acquisition of FinTech firms?** This question probes the effectiveness of sandboxes as a signaling mechanism for investors and their influence on capital raising.
- **How does a FinTech firm's entrepreneurial orientation (EO) influence the effectiveness of its regulatory sandbox membership signal on attracting funding?** This question explores the potential for conflicting signals from a FinTech's dual identity to impact investor perceptions and funding outcomes.
- **How does a FinTech venture's size influence the effectiveness of its regulatory sandbox membership signal on attracting funding?** This question investigates how venture maturity and inherent rigidities might alter the perceived value of sandbox participation for investors.
- **What are the key eligibility criteria and design features that contribute to the success of regulatory sandboxes in different jurisdictions?** This delves into the varying approaches globally, such as thematic sandboxes, and their effectiveness.
- **How do regulatory authorities leverage the evidence gathered from sandbox testing to inform and adapt existing regulatory frameworks and policies?** This examines the "test-and-learn" aspect of sandboxes and their role in regulatory evolution and capacity building.
- **What are the perceived benefits and challenges for FinTech firms, regulatory bodies, and consumers associated with participating in or being impacted by regulatory sandboxes?** This assesses the balance between innovation promotion and the safeguarding of consumer protection and financial stability.
- **To what extent do regulatory sandboxes contribute to fostering market competition and enhancing financial inclusion?** This explores broader societal impacts and whether sandboxes help bring services to underserved populations and create a more competitive financial landscape.

Previous study:

Bank of Thailand: A regulatory sandbox for shared KYC/CDD utility

The Bank of Thailand is using its regulatory sandbox to test a shared KYC and ID verification utility that relies on the National Digital Identity Platform (NDID) to verify and authenticate identity (BOT 2020). NDID is provided by National Digital ID Company Limited, which has shareholders from 69 companies, including Thai commercial banks, specialized financial institutions, securities companies, fund management companies, life insurance companies, casualty insurance companies, electronic payment service companies, the Stock Exchange of Thailand, and Thailand Post Company.

The test allows six commercial banks to sign up new customers into savings account products using a combination of facial recognition technology and the ID verification information customers previously provided

to the bank they already use. The goal of the test, which is limited to opening savings account products during normal business hours, is to foster more convenient and more secure remote account opening for digital financial services. The Bank of Thailand is monitoring the results of the test before making NDID functionality available more broadly to the financial sector.

The test builds on a previous sandbox effort in which 12 commercial banks and payment services providers tested biometrics technology—facial recognition—to verify customer identity through eKYC. The test was conducted to develop further guidance on the use of eKYC regulation to comply with requirements on anti-money laundering and combating the financing of terrorism (AML/CFT).

References:

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