

FUNCTIONING OF REGULATORY "SANDBOXES": PROBLEMS, PROBLEMS, PROSPECTS

Anatoly Kushchuk*, Candidate of Economic Sciences, Associate Professor,
Zaporizhzhia National University
Nataliia Kairachka, Student, Zaporizhzhia National University

*ORCID 0000-0003-0627-2296

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Стаття отримана редакцією 19.02.2023 р.

The article was received by editorial board on 19.02.2023

Introduction. The fintech sector in Ukraine is showing significant success and has great potential and prospects. In order to promote the development and implementation of fintech trends, attract investment and make financial products more accessible and understandable to users, the regulator needs to build effective relations with the fintech market. Regulators must balance digital innovation and consumer protection, which is why regulators in many countries have adopted a “regulatory sandbox” approach. Since there are no services and platforms on the market where developers could implement the latest financial technologies, and their regulation is uncertain, companies without a sandbox have no chance to test them.

Despite their relatively short age (the first official registration took place in 2016 in Great Britain), regulatory “sandboxes” occupy a significant place in the regulation of the financial market of various countries around the world. Some sandboxes may have a broad spectrum targeting the financial services sector, while others may be more targeted. Targeted sandboxes may include test environments for improving payment systems and developing digital authentication to prevent fraud, hacking, and cyberattacks. In addition to testing features and functionality, sandboxing also allows you to test security aspects, specific types of technologies, products, or business models.

Analysis of recent research and publications. The mechanism of the functioning of financial regulatory “sandboxes” has become the subject of research by foreign and domestic scientists. So, Leimüller H. [1], Wasserbacher-Schwarzer S. [1], Rosenberg K. [2], Potau K. [2], Leistner S. [2], Deikstal F. [2], Vinnyk A. [2], Tiriduzzi K. [2], Daved A. and Blind K. [2] considered the use of digital financial services in the Fintech market and their legislative regulation in different countries. A. Mazaraki [3], S. Volosovich [3], I. Dyakonova and others, as well as F. Landa and M. Olmos [4] considered the role in the technological implementation and development of financial regulatory sandbox tools.

Objectives of the article. The purpose of the article is to determine the essence of the thematic regulatory “sandboxes”, to study the features and prospects of their use, to formulate recommendations regarding the successful launch of the Ukrainian regulatory “sandbox”.

The main material of the study. The financial market has radically changed over the last decade. At this time, it was transformed from the traditional corporate business model of banks to large-scale ecosystems of non-banking and banking markets. The regulatory sandbox enables regulators to instantly make informed decisions about how to regulate and monitor business models and financial services that enter the market. In general, this technology is especially needed for: countries where regulatory requirements are unclear, absent or create obstacles for the development of innovation; successful market entry of companies; effective development of partnerships between existing financial firms and startups.

13 regulatory sandboxes were the first in the world to actively work with real cases – in the USA, Great Britain, Canada, Australia, Switzerland, Singapore, Lithuania, the UAE, Malaysia, the Philippines, Thailand, Indonesia. As many more are being developed and planned for launch. Although there is no agreed definition,

regulatory sandboxes usually refer to regulatory tools that allow businesses to test and experiment with new and innovative products and services under regulatory oversight for a limited period of time. In practice, the approach is aimed at enabling the experimentation of innovation within the framework of controlled risks and supervision, as well as improving the regulator's understanding of new technologies [5].

FinTech is an innovative technology used by financial institutions, state administration bodies, trade organizations to meet the needs of consumers of financial, administrative services and goods in the context of the development of the consumer economy [3]. In recent years, global regulators have adapted numerous initiatives to facilitate innovation in their countries to several formats. Regulatory sandboxes are one of them. There are several interpretations regarding the essence of this technology (see Table 1).

Table 1

Interpretation of the concept of "regulatory "sandbox"

Subject	Interpretation
National Bank of Ukraine	The regulatory "sandbox" is a regulatory environment for testing and approving innovative financial services, payment instruments, settlement schemes, products and technologies [6].
Information Commissioner's Office	The Regulatory Sandbox is a service developed by the ICO to support organizations that create products and services that use personal data in innovative and secure ways [7].
Izmailov M.	A fintech sandbox is a so-called safe place where financial companies can experiment with products and services, testing them on a small number of clients under the supervision of financial regulators [8].
Davydenko E.	Regulatory "sandbox" – the format of interaction between fintech companies and the financial regulator, which allows testing new products safely, without the risk of violating the law [9].
Datasphere initiative	The regulatory "sandbox" is a time-limited joint event involving regulators, service providers, and other relevant stakeholders to test innovative technologies and data processing methods for compliance with regulatory frameworks [10].
Leimüller H., Wasserbacher-Schwarzer S.	Regulatory "sandbox" are regulatory testing laboratories for innovations, in which the main innovations can be tested in special cooperation with authorities – especially relevant in innovation policy due to the high density of regulation [1].
Rosenberg K., Potau K., Leistner S., Felix Dijkstal, Vinnyk A., Tiriduzzi K., Blind K., et al.	The regulatory "sandbox" is a tool policy that favors little testing in the real-time innovation in controlled market environment [8].

Source: compiled by the authors based on data [1; 2; 6–10]

In our opinion, the most complete interpretation of the term "regulatory sandbox" can be defined as follows: "a regulatory environment for testing and approving innovative financial services, payment instruments, settlement schemes, products and technologies", because it most accurately reveals the essence of this technology in terms of a functional mechanism at the level of the state regulator of the provision of various services by banking and non-banking institutions on the financial markets of Ukraine.

After its first successful launch, regulatory authorities around the world are using the regulatory sandbox as a means of providing a dynamic, evidence-based regulatory environment for testing new technologies. Figure 1 shows the total number of "sandboxes" by World Bank region as of November 2020.

So, the largest number of sand pits was created in East Asia and the Pacific region, followed by Europe and Central Asia. The smallest number of sand dunes in North America and South Asia.

In total, 23 sandboxes related to financial activity or financial inclusion topics can be identified (Figure 2). These also include sandboxes created with a specific mandate to promote financial inclusion, or those that have been introduced by a national domestic financial inclusion strategy with the specific goal of stimulating product innovation for the underserved.

Common law countries, civil law countries and countries operating under a hybrid system all have established sandboxes, despite their different supervisory roles and powers, emphasizing that no system is more suitable than the others.

Thematic sandboxes can be effective for promoting certain technologies and specific policy priorities. While the majority (60%) of fintech sandboxes focus on general fintech innovation, some specifically use topics such as advancing blockchain technology for insurance technology innovation or to support remote authentication.

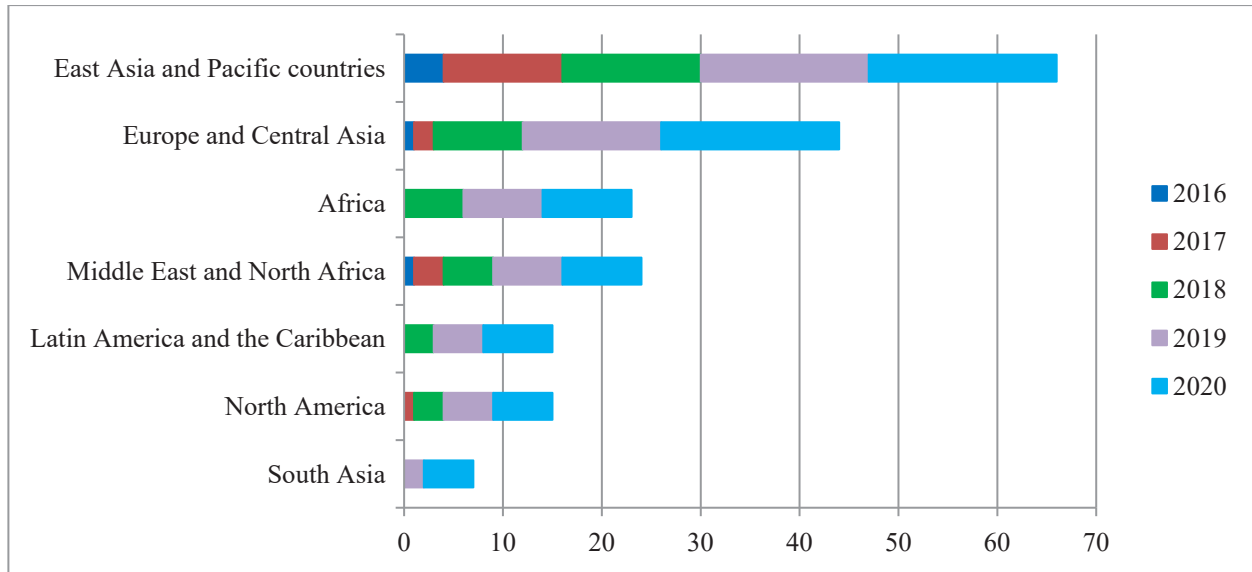


Figure 1. Number of sand pits by World Bank regions

Source: compiled by the authors based on data [11]

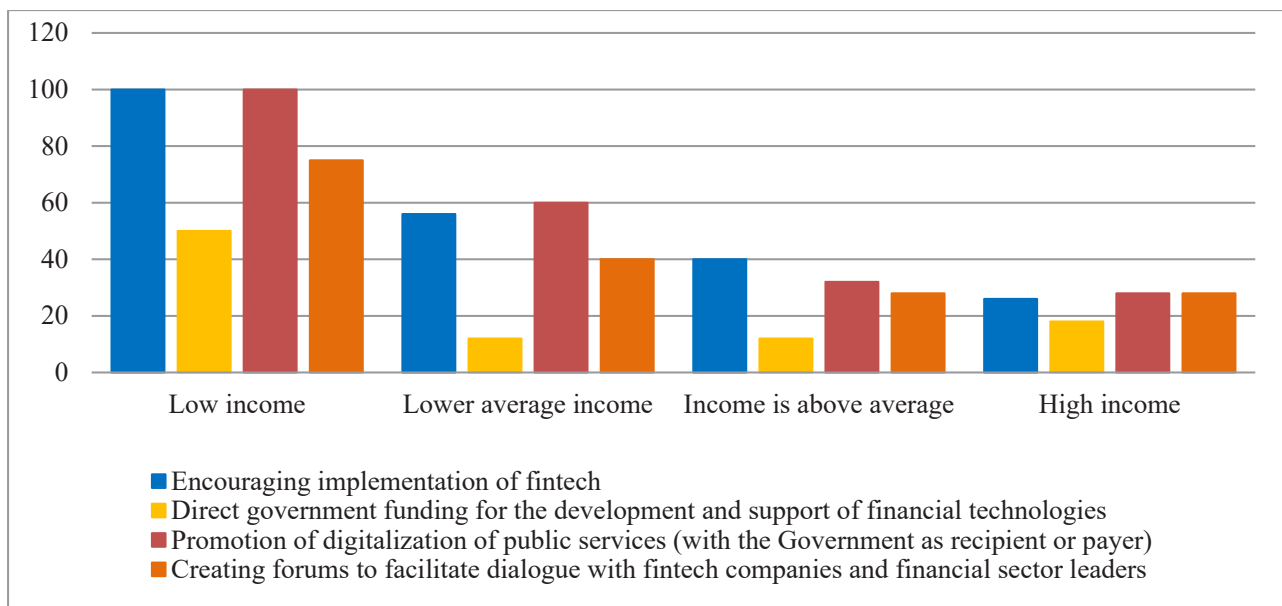


Figure 2. Fintech-related sandboxes with the theme of financial inclusion

Source: compiled by the authors based on data [11]

We considered the development of fintech technologies in the context of the financial regulatory "sandbox" in the following countries: Singapore, Hong Kong, Australia, Great Britain, Canada, Bahrain, Thailand, Malaysia. The main reason for their selection was the fact that the first five of them can be attributed to countries with a developed fintech ecosystem, and the others to countries that are rapidly gaining the pace of implementation of financial technologies.

In 2016, the UK's Financial Conduct Authority (FCA) announced the launch of its "regulatory sandbox" with the aim of removing unnecessary barriers to innovative banking and finance businesses [12]. The UK Financial Conduct Authority's (FCA) sandbox is a platform open to authorized and unauthorized firms and technology enterprises. It has proved popular, not least among fintech start-ups and those yet to obtain FCA approval, each group, or 'cohort' as they are called, is oversubscribed – around one in three applicants have been accepted into the various cohorts [4]. By 2021, the FCA sandbox had 8 cohorts with just over 500 corporations and over 150 firms accepted for testing.

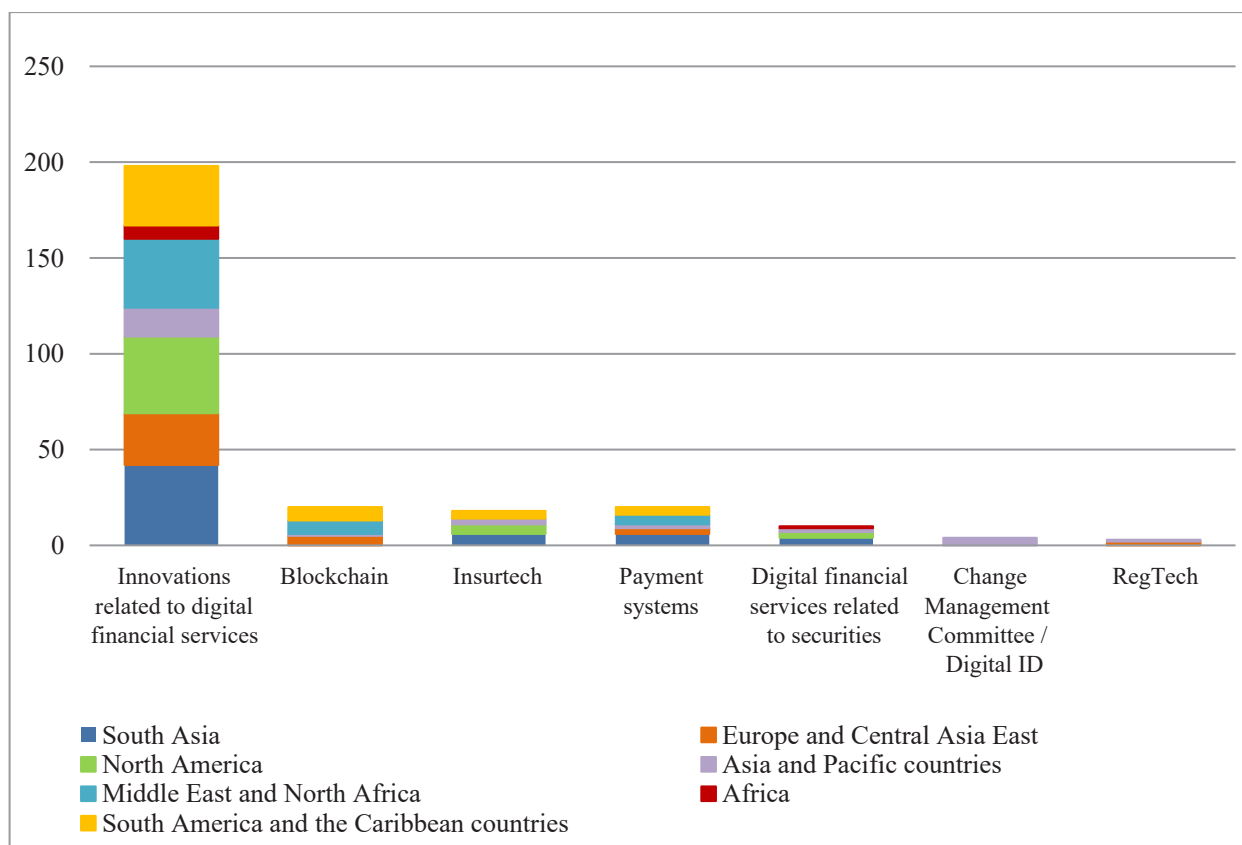


Figure 3. Sandbox topics by region according to research by the World Bank Group

Source: compiled by the authors based on data [11]

The CSA Regulatory Sandbox is an initiative of the Canadian Securities Administrators (CSA) to support fintech businesses seeking to offer innovative products, services and programs in Canada. This allows companies to register and/or obtain an exceptional exemption from securities law requirements in a faster and more flexible process than through the standard program to test their products, services and programs in the Canadian market in a limited time. The CSA's Regulatory Sandbox is part of the CSA's business plan to better understand how technological innovation impacts capital markets, assess the scope and nature of regulatory implications, and what may be needed to modernize the fintech securities regulatory framework [13].

Hong Kong's Fintech Supervisory Sandbox (FSS), launched by the HKMA (regulator Hong Kong Monetary Authority) in September 2016, allows banks and their technology partner companies (tech companies) to pilot their fintech initiatives with a limited number of participating clients without the need achieving full compliance with the HKMA's supervisory requirements. This arrangement allows banks and technology companies to collect data and user feedback to improve their new initiatives, thereby speeding up the launch of new technology products and reducing development costs. FSS 3.0 facilitates eligible research and development (R&D) pilot projects to apply for financial support of up to HK\$1 million under the Innovation and Technology Commission (ITC) Public Sector Trial. To enhance FSS 3.0, HKMA is collaborating with Hong Kong Cyberport Management Company Limited (Cyberport) to pilot FSS 3.1, a new financing schemes [14].

Bahrain Regulatory Sandbox (FinHubFootnote63), launched in 2017, is a virtual space for testing innovative solutions based on new technologies in the financial sector. Importantly, Bahrain is a member and participant of the Global Financial Innovation Network (GFIN) and allows participants in its sandbox to apply for a "pilot" cross-border test for a period of 6 months (with the possibility of extension). Since its introduction, CBB (Central bank of Bahrain) has made changes to the framework twice, each time opening up new opportunities for innovation. Policymakers in Bahrain make it clear that the sandbox should not be used to circumvent existing rules and conditions, while the CBB is the only organization that can publish information about successful applications and applicants on its website or through other channels [15].

If we consider the Fintech of Ukraine, we can say that in 2022 there were significant changes in legislative acts, in particular, the law "On virtual assets" and the law "On payment services" were implemented, PayPal became fully operational, a digital platform to support Ukrainians is Help and program eOselya, Weld Money in cooperation with Yunex Bank and Mastercard launched the first cryptocurrency card for all users in Ukraine, the supermarket chain VARUS announced cooperation with the cryptocurrency platform Binance, the fintech company Wirex opened access to cryptocurrency cards to Ukrainian refugees in the EU, one of the largest fintech startups in the world, Klarna, opened the possibility for owners of Ukrainian bank cards to buy goods through its service, and the British neobank Revolut offered payment services to Ukrainian refugees.

The main Fintech trends in 2023 will be the following: embedded finance and BNPL (buy now pay later), the growth of machine learning algorithms, the introduction of the Zero Trust security concept into digital products, the development of SupTech and RegTech, etc.

If we consider the Ukrainian regulatory "sandbox", the plans of the National Bank of Ukraine to launch it for the fintech market in the second half of 2022 were thwarted by the full-scale invasion of Russia. Meanwhile, the regulator resumed active actions in accordance with the adopted Fintech Development Strategy in Ukraine. The objective of the program is to stimulate the development of digital innovations in the financial sector and reduce the time to market for innovative products and services under the supervision of the regulator.

In order to successfully launch the regulatory "sandbox", the National Bank of Ukraine needs to take the following steps: introduce new draft laws and prescribe in detail who can become a participant, what services can be provided, what exceptions exist for testing acceptable financial services in the sandbox. For example, exemption from financial licenses and consumer credit licenses as in Australia; implement the NBU Concepts "About SupTech and RegTech" and further improvement of technologies in practical use; to spread the practical application of crowdfunding among the general population; promote the development of InsurTech technologies in the domestic market of insurance services.

Conclusions. Innovations in supervisory and regulatory technologies are the key to the sustainable development of the financial market, they allow financial institutions and regulators to constantly improve current processes, expand the range of clients/supervised entities, identify and warn of potential risks. Regulators must balance digital innovation and consumer protection, which is why regulators in many countries have adopted a regulatory sandbox approach. Despite the fact that the practice of interaction between financial regulators and fintech companies in the format of a regulatory "sandbox" has existed for about 5 years, their operation in different countries has shown its effectiveness. For the effective implementation of this technology in Ukraine and its further functioning, it is necessary to improve legislation, constantly develop payment instruments, expand the functionality of alternative finance, develop SupTech and RegTech for further expansion of innovative innovations in the financial sector.

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UDC 336.76: 330.341.1

JEL G20

Anatoliy Kushchyk, Candidate of Economic Sciences, Associate Professor, Zaporizhia National University. **Kairachka Nataliia**, Student, Zaporizhia National University. **Functioning of regulatory "sandboxes": tasks, problems, prospects.**

The article is devoted to the consideration of foreign experience in the regulation of FinTech services. The features of the regulation and supervision system in foreign countries are characterized, the advantages and disadvantages of regulation systems based on rules and principles are determined. A comparative analysis of the use of the regulatory "sandbox" in foreign countries was carried out, common and distinctive features were identified, and the advantages and disadvantages of using this type of regulation of the financial services sector were highlighted. The main Fintech trends in 2023, in particular, embedded finance and BNPL, are identified, and recommendations are provided that would positively affect the successful implementation of the Ukrainian regulatory "sandbox" and contribute to its further modernization in accordance with the world's innovative development of financial technologies. A structural-recommendation model for the creation of domestic regulatory "sandboxes" is proposed.

Key words: financial markets, regulatory "sandbox", payment systems, fintech, financial innovations, regtech, supertech.

УДК 336.76: 330.341.1

JEL G20

Кущик Анатолій Петрович, кандидат економічних наук, доцент, Запорізький національний університет. **Кайрачка Наталія Василівна**, студентка, Запорізький національний університет. **Функціонування регуляторних «пісочниць»: задачі, проблеми, перспективи.**

В статті розглянуто поширення технології RegTech (регулятивні технології), застосування яких дозволяє привести діяльність фінансових установ у відповідність до встановлених регулятором вимог і чинним законодавством норм. Зазначено, що регулятор та наглядові органи застосовують технології SupTech (наглядові технології), прискорюючи та полегшуючи таким чином виконання адміністративних процесів, збір структурованих і неструктурованих даних та їх аналіз. Розкрито особливості впровадження новітніх технологій, безпосередньо, фінансових регуляторних «пісочниць». Розглянуто сутнісне значення регуляторної «пісочниці» в контексті сфери надання фінансових послуг. Зазначено, що вдосконалення технології блокчейну для інновацій у страхових технологіях або для підтримки віддаленої автентифікації є основними темами фінтех-пісочниць. Надано кількісну характеристику діючих регуляторів, які були вдало впроваджені у зарубіжній країні і стали серйозним поштовхом для діджиталізації фінансових послуг та розширення можливостей споживачів. Визначено першу впроваджену регуляторну пісочницю та її структурні елементи. Охарактеризовано особливості системи регулювання та нагляду в зарубіжних країнах, визначено переваги та недоліки систем регулювання на основі правил та принципів. Проаналізовано їхню найбільшу кількісну присутність серед світових регіонів. Здійснено порівняльний аналіз використання регуляторної «пісочниці» у зарубіжних країнах, визначено спільні та відмінні риси, виділено переваги та недоліки використання даного виду регулювання сфери фінансових послуг. Розкрито та охарактеризовано основні законодавчі зміни на період 2022 року в Україні в фінтех-ринку. Запропоновано структурно-рекомендаційну модель створення вітчизняних регуляторних «пісочниць». Визначені основні тренди Фінтеху в 2023 року, зокрема, вбудовані фінанси та BNPL та надано рекомендації, які б позитивно вплинули на вдале впровадження української регуляторної «пісочниці» і сприяли б її подальшій модернізації відповідно до світового інноваційного розвитку фінансових технологій.

Ключові слова: фінансові ринки, регуляторна «пісочниця», платіжні системи, фінтех, фінансові інновації, регтех, супертех.