

FinTech and Regulatory Sandbox – new challenges for the financial market.

The case of the Slovak Republic

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Abstract

The article deals with the issue of emerging regulatory sandboxes and FinTech in the financial markets. The choice of topic is given by i) the topicality of the selected issues and dynamic changes in the financial markets, ii) the fact that there is no flat-rate framework for operating the regulatory sandbox and innovation hub and the EU's efforts to establish a framework for the operation of the innovation hub and the regulatory sandbox build on a comparative analysis of the steps already taken in Member States' legislation. Based on the analysis of previous scientific studies focused on the issue of regulatory sandboxes, the article identifies summarizing criteria on the basis of which it approaches the analysis of the operating of the regulatory sandbox in the conditions of the Slovak Republic. The article thus reflects on the need for analysis of national approaches to the establishment of the regulatory sandbox and complements the range of scientific studies with the lack of analysis of the regulatory sandbox in the conditions of the Slovak Republic. With this approach, the article supports the possibility of using the method of horizontal comparison of national regulations of individual states in setting a transnational approach to FinTech regulations, as well as contributes to further scientific research at the international level.

Keywords: *FinTech, regulatory sandbox, incubation models, innovation hub, the Slovak Republic, European Union.*

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1. Introduction

Nowadays, financial markets across Europe (and not only in Europe) face the challenge which lies in the regulation of new financial market services and products that arise as a result of the use of new financial technologies. Financial technologies (hereinafter referred to as "FinTech") is a term used to describe innovations in financial services based on technologies that could lead to the establishment of new business models, applications, processes and products and that could have a significant side effect on financial markets, and institutions and the way the financial services are provided.² However, despite the growing number of

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² European Commission, *FinTech action plan: For a more competitive and innovative European financial sector* (European Commission, 2018) https://ec.europa.eu/info/publications/180308-action-plan-fintech_en.

scientific and professional works dealing with FinTech and the regulatory environment³, there are significant limits in setting a flat-rate framework for FinTech's operation and regulation. FinTech causes dynamic changes within the financial market, not only by making new business models and products conditional, but also by changing the functioning of the financial market. The right setting of FinTech regulation while maintaining the full potential of new technologies is thus a considerable challenge for legislators. In response to the need for FinTech regulation, innovation hubs and regulatory sandboxes have been gradually developed, the operation of which varies depending on the individual legislation. The innovation hub is intended to serve as a contact point for communication with the competent financial market supervisory authority and for obtaining independent consultations concerning the application of existing regulatory requirements. A regulatory sandbox is an environment that allows you to test innovative financial products, financial services or business models in accordance with a testing plan approved by the financial market supervisory authority. The regulatory sandbox may also allow the use of statutory discretionary powers of the supervisory authority, in accordance with national and European law. What is essential in terms of The European Supervisory Authorities (ESAs) Report FinTech: Regulatory sandboxes and innovation hubs (hereinafter referred to as "the ESAs' Report"), as well as following the Action Plan, the application of regulatory requirements cannot be waived within the regulatory sandbox.⁴

The regulatory sandbox represents a change in the approach to regulation, in particular in the fact that the regulatory sandbox responds to the new opportunities thanks to financial innovations and does not focus only on a passive approach based on risk identification and subsequent risk mitigation.⁵

The regulatory sandbox and the innovation hub thus provide, to a certain extent, an opportunity to avoid situations where the legislator has to deal with a large number of urgent requirements to fill the various most pivotal "gaps" in the existing legal framework, without the possibility of a comprehensive back analysis of

³ Bromberg Lev, Godwin, Andrew, and Ramsay Ian. "Fintech Sandboxes: Achieving a Balance Between Regulation and Innovation." *Journal of Banking and Finance Law and Practice* 28, no. 4 (2017): 314-336., Buckley, Ross P., Arner, Douglas W., Zetsche, Dirk A., Gibson, Evan C. "Building Australia's Fintech Ecosystem: Innovation Hubs for a Competitive Advantage" *Journal of banking and Finance law and practise* 31, no. 2 (2020): 133-140., Ahmad Alaassar, Anne-Laure Mention, Tor Helge Aas. "Exploring a new incubation model for FinTechs: Regulatory sandboxes." *Technovation*, no.103 (2021):1-14. 10.1016/j.technovation.2021.102237. Ahern, DM. "Regulators nurturing fintech innovation: global evolution of the regulatory sandbox as opportunity based regulation." European Banking Institute Working Paper Series, no. 60. (2020) Frankfurt: European Banking Institute. <http://ijlt.in/wp-content/uploads/2020/11/IJLT-152-91-124.pdf>, 22; Saule T. Omarova. "Technology v Technocracy: Fintech as a Regulatory Challenge" *Journal of Financial Regulation* 1, no.6 (March 2020): 75–124. <https://doi.org/10.1093/jfr/fjaa004>.

⁴ ESAs Joint report FinTech, *Regulatory sandboxes and innovation hubs*, p.20, <https://www.eba.europa.eu/sites/default/documents/files/documents/10180/2545547/154a7ccb-06de-4514-a1e3-0d063b5edb46/JC%202018%2074%20Joint%20Report%20on%20Regulatory%20Sandboxes%20and%20Innovation%20Hubs.pdf>.

⁵ Ahern, DM., *op. cit.*, 2020, p. 23.

inconveniences and challenges caused by spread of new technologies.⁶ At the same time, they can be a solution how to deal with the different approaches to FinTech regulations in the financial markets, which hinder the potential for the use of these technologies and make their cross-border use more strenuous.

Nowadays, there is no uniform approach to FinTech regulations at the level of the European Union (hereinafter referred to as the "EU"), nor is there a flat-rate framework for the operation of the regulatory sandbox and innovation hub (hereinafter referred to as the "Innovation Facilitators"). The EU's efforts to establish a framework for the operation of the innovation hub and the regulatory sandbox build on a comparative analysis of the steps already taken in Member States' legislation. Given the dynamic development of the financial market, the different approaches to setting up innovation facilitators within Member States, we hold the opinion that analysing their operating at national levels can provide a valuable basis for further scientific research on this issue, also because of the need for a common approach at EU level. A systematic evaluation of different approaches to the creation and operation of innovation facilitators forms the basis for a comprehensive analysis of the available EU options for FinTech regulation. Based on this approach, it is possible to identify benefits as well as risks within various modifications in the approach to FinTech in individual countries and to set up ex ante regulation correctly. This approach will enable:

- to analyse the need for application of existing regulation,
- identify the need for ex ante regulation settings and
- *de lege ferenda* proposals that would "cover" new business models in financial market services, including a sanction mechanism.

The need to analyse the operation of the innovation hub and the regulatory sandbox within individual countries is also emphasized by several scientific studies.⁷ For this reason, the article deals with the issue of innovation facilitators in the conditions of the Slovak Republic. The choice of topic is also supported by the fact that at the time of drafting the ESAs Report innovation facilitators in the Slovak Republic were not implemented. For this reason, the report does not contain data on the functioning of innovation facilitators in the conditions of the Slovak Republic. The choice of topic thus supports the possibility to use the method of horizontal comparison of national regulations of individual states in setting a transnational approach to FinTech regulations, as well as serves for further scientific research at the international level.

⁶ Saule T. Omarova, *op. cit.*, p. 77.

⁷ Deirdre Ahern. "Regulatory Lag, Regulatory Friction and Regulatory Transition as FinTech Disenablers: Calibrating an EU Response to the Regulatory Sandbox Phenomenon." *European Business Organization Law Review* 22, no. 3, (2021): 430-432., Agnieszka Butor-Keler, Michał Polasik. "The role of regulatory sandboxes in the development of innovations on the financial services market: the case of the United Kingdom," *Ekonomia i Prawo. Economics and Law*, no. 4 (2020): 624. DOI 10.12775/EiP.2020.041., Ahmad Alaassar, Anne-Laure Mention, Tor Helge Aas. *op. cit.*, 2021, p. 1-14, Ahmad Alaassar, Anne-Laure Mention, Tor Helge Aas. "Facilitating innovation in FinTech: a review and research agenda" *Rev Manag Sci* (2022). <https://doi.org/10.1007/s11846-022-00531-x>.

2. Nature of Regulatory Sandboxes

We hold the opinion that adequate setting of FinTech regulation and the use of innovation hubs and regulatory sandboxes is crucial, as financial innovations cause a wide range of application issues in everyday practice. The significance of the researched issue also lies in the growing popularity of the use of FinTech on the financial markets. For the above reasons, the article also focuses on the analysis of the functioning of innovation facilitators in the conditions of the Slovak Republic. The regime of functioning of innovation facilitators in the Slovak Republic is evaluated from the point of view of:

- entities that can enter the sandbox,
- individual stages in a sandbox,
- the length of time that entities can remain in the sandbox,
- measures of regulation in the sandbox,
- cross-border participation in sandboxes.

These criteria for sandbox analysis result from a summary of approaches to sandbox evaluation within available scientific studies and publications. The chosen criteria do not represent a comprehensive listing, but a combination of already chosen approaches of several authors in order to achieve the most effective degree of horizontal comparison.⁸

Regulatory sandboxes represent a new phenomenon in the approach to regulating the activities of financial market entities. Due to their ongoing dynamic development as well as the inconsistent approach to their establishment in different countries, it is impossible to draw clear conclusions about their role in the financial markets. For this reason, we are of the opinion that it is inevitable to focus on the comparison of their advantages and potential risks, which were formulated within the available scientific outputs. Subsequently, we will try to take into consideration some of the advantages identified in this way or disadvantages in the analysis of the operation of the regulatory sandbox in the conditions of the Slovak Republic (so far to a limited extent, as the regulatory sandbox was established in the Slovak Republic at the beginning of 2022 and therefore the real outputs of its operation are not yet available).

According to several authors some of the advantages of regulatory sandboxes are as follows:

- the ability to test innovations in a secure, isolated environment, which allows the business model to be verified on the part of the entrepreneur and to ensure consumer safety. This benefit embodies the very idea of a regulatory sandbox and is the most common argument in favour of establishing regulatory sandboxes.

⁸ Deirdre Ahern, *op. cit.*, 2021, pp. 395-432, Ringe, Wolf-Georg, Ruof, Christopher, "Regulating Fintech in the EU: the Case for a Guided Sandbox." *European Journal of Risk Regulation* 11 (2020): 604-629., Zetzsche et al, "Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation" *Fordham Journal of Corporate & Financial Law* 31, (2017): 69.

- the regulatory sandbox allows the development of various innovative technologies simultaneously, which supports the overall development of innovative technologies in the financial markets.⁹

- the possibility of reducing the information asymmetry arising between the financial market entity and the regulator, which consists in the fact that (i) the financial market entity has more information about the activities it carries out than those that the regulator has or will have, ii) the financial market entities do not have detailed information or legal certainty as to how the relevant regulatory rules will be interpreted, enforced or amended in the future.¹⁰ Regulatory sandboxes help reduce information asymmetries through institutionalized exchange of information between regulators and entities.¹¹

- regulatory sandboxes can help reduce regulatory arbitrage. Regulatory arbitrage occurs when financial market participants intentionally change the form of a financial activity in order to circumvent the set regulatory requirements without affecting the degree of risk associated with the activity they perform.¹² Regulatory arbitrage complicates the setting of regulation and reduces its effectiveness and is therefore one of the typical problems in the financial market.¹³ Regulatory sandboxes can help reduce it.¹⁴

- regulatory sandboxes function not only as a regulator of financial innovations, but especially as their facilitator, thus stimulating their use in the financial market.¹⁵

- the use of a regulatory sandbox increases the credibility of involved entities.¹⁶ On the other hand, there are several risks associated with this, which lie in the reputation risk of the regulator. The reputation risk of the regulator lies in the risk of raising a false assumption among clients that the participant in the regulatory sandbox is a fully regulated entity, or more precisely has permission from the regulator, which applies to the tested financial innovation.

⁹ Agnieszka Butor-Keler, Michał Polasik. *op. cit.*, 2020, p. 631.

¹⁰ Marjosola, Heikki. "The problem of regulatory arbitrage: A transaction cost economics perspective." *Regulation & Governance* 15, no. 2 (2021): 400.

¹¹ Zetzsche et al, *op. cit.*, 2017, p. 69.

¹² Allen, Franklin, Goldstein, Itay, Jagtiani, Julapa, Lang, William W. "Enhancing Prudential Standards in Financial Regulations." *Journal of Financial Service Research* 49, no. 2-3 (2016): 133-149. <https://doi.org/10.1007/s10693-016-0253-2>, Allen, Hilary J. "Regulatory Sandboxes." *George Washington Law Review* 87, no.3 (2019): 579-645.

¹³ Goodhart, Charles A. E., Lastra, Rosa M. "The boundary problems in financial regulation", *Research Handbook on International Banking and Governance* (2012): 321-322., Minto, Andrea, Prinz, Stephanie, Wulff, Melanie. "A Risk Characterization of Regulatory Arbitrage in Financial Markets" *European Business organization law review* 22, no.4 (2021): 719., Pollman, Elizabeth. "Tech, Regulatory Arbitrage, and Limits", *European Business organization law review* 20, no. 3 (2019): 567-590., Dai, Junxun. "Regulatory Capital Arbitrage and the International Financial Crisis", *Proceedings of China-Canada Industry Workshop on Financial Engineering and Enterprise Risk Management* (2009):16-20.

¹⁴ Marjosola, Heikki, *op. cit.*, 2021, p. 401.

¹⁵ Brown, Eric, Piroška, Dora. "Governing Fintech and Fintech as Governance: The Regulatory Sandbox, Riskwashing, and Disruptive Social Classification" *New Political Economy* 27, no.1 (2021): 19-32.

¹⁶ Ahern, DM., *op. cit.*, 2020, p. 24, Allen, Hilary J., *op. cit.*, 2019, p. 642.

According to several authors some of the disadvantages of regulatory sandboxes are as follows:

- the regulatory sandbox allows only a limited number of entities to be tested. Therefore, it may not have a sufficient impact on the development of financial innovation and potentially distort competition on the market.¹⁷

- it is too complex to set the entry criteria appropriately so that they are non-discriminatory and transparent.¹⁸

- a non-uniform approach in setting the entry criteria for regulatory sandboxes may lead to discrimination against some sectors in the area of financial innovation (e.g. crypto-assets and blockchain are excluded from many regulatory sandboxes).¹⁹

- it is questionable whether sandboxes can provide a realistic picture of the actual impact of tested financial innovations in their actual use, as within the testing phase of a sandbox, several sandboxes allow the implementation of tested financial innovation in a limited range of entities (e.g. 100 retail clients etc.).²⁰

- regulatory sandboxes can contribute to “riskwashing”, i.e. situations where participation in a regulatory sandbox can give the impression of a lower level of risk associated with the innovations being tested, regardless of the actual level of risk involved.²¹ To some extent, the regulator's reputation risk also comes to the fore in this regard.

- regulatory sandboxes can be considered to some extent non-transparent and disorganized in terms of the degree of regulation.²²

3. Innovation facilitators in the Slovak Republic

As in most Member States, and within the Slovak legal system as well, the National Bank of Slovakia (hereinafter referred to as the “NBS”), the regulator of the Slovak financial market, has set up facilitators for the innovation hub and the regulatory sandbox. The innovation hub was established in the conditions of the Slovak Republic in April 2019. The establishment of an innovation hub is the first major step in establishing innovation facilitators. The need to set up an innovation hub was also strong in the increase in demand for financial innovations, which prior to the establishment of the innovation hub were developed gradually, in isolation,

¹⁷ Agnieszka Butor-Keler, Michał Polasik. *op. cit.*, p. 632.

¹⁸ Zetsche et al, “Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation” *Fordham Journal of Corporate & Financial Law* 31, (2017): 46.

¹⁹ Ross Buckley, et al. “Building Fintech Ecosystems: Regulatory Sandboxes, Innovation Hubs and Beyond.” *Washington University Journal of Law & Policy*, vol. 61, (2020): 055-098., Buckley, Ross P., Arner, Douglas W., Zetsche, Dirk A., Gibson, Evan C. *op. cit.*, 2020, p. 133-140.

²⁰ Ahmad Alaassar, Anne-Laure Mention, Tor Helge Aas, *op. cit.*, p. 13, Clarke, Chris. “Platform lending and the politics of financial infrastructures” *Review of International Political Economy* 26, no.5. (2019): 863-885.

²¹ Brown, Eric, Piroška, Dora, *op. cit.*, 2021, p. 19-32.

²² Laufer, WS. “Social accountability and corporate greenwashing” *Journal of Business Ethics* 43, no. 3 (2003): 253-261.

according to limited possibilities and capacities. The innovation hub thus contributed to ensuring systematic interdisciplinary cooperation, the ambition of which is to assist not only in the creation of regulation, but also in the exercise of supervision.²³ From the point of view of the factual definition of the innovation hub in the conditions of the Slovak Republic, these are mainly the following business models:

- alternative payment methods,
- crowdfunding,
- automated advice,
- crypto-assets and ICOs,
- insurtech and
- algorithmic trading.

The innovation hub was subsequently supplemented with new technological areas, including:

- smart contracts,
- biometric authentication,
- big data a machine learning,
- blockchain, mobile wallet with NFC,
- cloud computing.

Based on data collected from March 2020 to April 2021, financial market players were interested in topics such as crypto-assets, alternative payments (PIS, AIS), AML issues, as well as automated advice (robo-advice), RegTech, or data analytics. Having regard to the cooperation at the national level, it is necessary to mention the close cooperation of the innovation hub with the Center for Financial Innovations (hereinafter referred to as the "CFI"), which was established by the Ministry of Finance of the Slovak Republic in February 2018. The main objective of the CFI is to create a platform for relevant public authorities, market players and interest groups to enable a regular exchange of information and experience. In terms of European cooperation, representatives of the innovation hub have been involved in the work of the European Forum for Innovation Facilitators (EFIF), which brings together European innovation hubs and regulatory sandboxes. The prerequisite for solving the initiative through the innovation hub is:

- diversity and innovation,
- ambiguity of the applicable regulatory framework,
- benefits for the consumer and the financial system of the Slovak Republic.

It should be noted that within the rules of participation in the innovation hub, the NBS explicitly stipulates that carrying out activities on the financial market without the appropriate permit is a reason for imposing a sanction by the NBS and in certain circumstances may be a criminal offense. Although this provision, which logically follows from the set legislation, may to some extent seem demotivating for

²³ NBS: Správa o činnosti Inovačného hubu Národnej banky Slovenska, Máj 2020. ISSN 2644-7169, p. 5 dostupné na https://www.nbs.sk/_img/Documents/_Publikacie/fintech/SC-IH-NBS-2021-10.pdf.

those interested in participating in the innovation hub, especially due to concerns about possible sanctions by the NBS, especially in case of questionable legal nature of innovative services if they are already at a certain stage of implementation.

In 2022, in connection with the already established innovation hub, a regulatory sandbox was established. The basic difference between the operation of the innovation hub and the regulatory sandbox lies in the fact that the innovation hub is used for short-term and one-time consultations (responding to specific questions), while the regulatory sandbox is used for repeated consultations on financial innovation setting and its subsequent actual testing on the financial market (this is a several-month consultation). In both cases, however, the NBS opinion provided through the innovation hub or cooperation within the regulatory sandbox does not replace the procedure for issuing an operating license (license). In this context, it is necessary to emphasize that the NBS operates within the Slovak financial market not only as a central bank, but also a supervisory authority and a regulator, while exercising supervision on an integrated basis, i.e. over the entire financial market. Within this position, the NBS grants permits for the activities of supervised entities within the entire financial market in the Slovak Republic.

4. Regulatory Sandbox in the Slovak Republic

In accordance with the Rules for the Operation of the Regulatory Sandbox in the Slovak Republic²⁴, the regulatory sandbox is a platform that helps the participant, on the basis of consultations, to set up financial innovation in accordance with generally binding legal regulations within the competence of the NBS and enables testing.

The article focuses on the evaluation of the regulatory sandbox in the Slovak Republic on the basis of established criteria, in particular: i) entities that can enter the sandbox, ii) individual phases in the sandbox, iii) the period for which entities can remain in the sandbox, iv) the degree of regulation in the sandbox and (v) cross-border participation in regulatory sandboxes.

From the point of view of entities that can enter the regulatory sandbox, it is necessary to emphasize that although the Rules for the Operation of the Regulatory Sandbox in the Slovak Republic²⁵ allow the participation of a wider range of entities, their participation is always in some form conditioned by the existence of NBS authorisation to perform activities.

A participant in the regulatory sandbox may be:

- the supervised entity,
- the foreign supervised entity,
- the applicant for authorisation,
- the service provider,
- the future supervised entity.

²⁴ https://www.nbs.sk/_img/Documents/_Dohlad/Fintech/sandbox/Pravidla-sandbox-NBS.pdf.

²⁵ https://www.nbs.sk/_img/Documents/_Dohlad/Fintech/sandbox/Pravidla-sandbox-NBS.pdf.

In each of these entities, it is evident that their ability to participate in the regulatory sandbox is conditional on the existence or the future existence of an authorisation issued by the NBS. The authorisation is an authorisation or other permission to perform activities or registration pursuant to legislation issued by the NBS. The supervised entity is an entity supervised by NBS pursuant to legislation (and it is authorised by NBS). The foreign supervised entity is an entity supervised by a foreign financial market supervisory authority in another Member State of the EU. The applicant for authorisation is a natural or legal person who has submitted an application for authorisation or for other permission to perform activities or for registration pursuant to legislation or is interested in making such a request during the preparatory phase of the regulatory sandbox. The service provider is a third party who, on the basis of an outsourcing agreement (hereinafter "outsourcing agreement") concluded with the supervised entity, applies a procedure, provides a service, or performs an activity or part thereof for which the supervised entity is authorised according to legislation. The future supervised entity an entity performing activities that will be subject to legislation within the competence of the NBS, which was published in the Collection of Laws of the Slovak Republic (hereinafter "Collection of Laws") or in the Official Journal of the European Union (hereinafter the "Official Journal"), but has not yet entered into force or is not yet applicable.

Even prior to the implementation of the regulatory sandbox, the NBS conducted a Consultation on the Operation of the Regulatory Sandbox, in which respondents pointed out the appropriateness of extending the operation of the regulatory sandbox to unsupervised entities, such as crypto-assets service providers. According to the answers received, the added value of the participation of these entities would be the improvement of their position on the financial market, as well as the deepening of the NBS's knowledge of their activities. Respondents stated that such entities should be allowed to enter the regulatory sandbox under the same conditions as supervised entities.²⁶ Despite several advantages associated with the participation of unsupervised entities, the reputation risk of the NBS, which lies in the impossibility of imposing legal sanctions on unsupervised entities, comes to the fore. Due to the reputational risk, the scope of unsupervised entities in the regulatory sandbox was limited to service providers, while their involvement in the sandbox is conditioned by the existence of an outsourcing agreement with the supervised entity. We see the same approach in the ECON Study, according to which access to the regulatory sandbox should be given to entities that, even if they do not perform supervised activities, cooperate with regulated entities. The purpose of such a requirement is to ensure that the test parameters imposed by the supervisor are enforceable against the financial institution, as the technology provider itself is not a regulated entity.²⁷

²⁶ https://www.nbs.sk/_img/documents/_dohlad/fintech/regulacny-sandbox-vyhodnotenie.pdf.

²⁷ Study requested by the ECON committee: Regulatory Sandboxes and Innovation Hubs for FinTech, p. 30 available at [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652752/IPOL_STU\(2020\)652752_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652752/IPOL_STU(2020)652752_EN.pdf).

To enter into the regulatory sandbox, the applicant must meet the following criteria:

- the applicant's readiness to participate in the regulatory sandbox and readiness of financial innovation for testing,
- the existence of the need for testing,
- innovativeness,
- positive impacts on clients in the Slovak financial market and the absence of significant negative impacts on financial stability in the Slovak Republic.²⁸

Participation in the regulatory sandbox has these phases:

- *Preparatory phase.* The preparatory phase is based on consultations of the participant with the NBS. The aim of consultations is to help the participant to adjust financial innovation in compliance with the legislation within the competence of the NBS. Following the consultations in the preparatory phase, the NBS will ask the participant to submit a draft testing plan within the specified time limit. The draft testing plan shall include for example a description of the financial innovation, the planned course of testing, and the expected results of testing, information on possible testing limitations - for example, on the maximum number of clients, type of clients, and identification of the main risks that may arise in the testing of financial innovation. If the participant is the applicant for authorisation, that participant must obtain the relevant authorisation during the preparatory phase. The participant may test financial innovation in the regulatory sandbox only after obtaining the relevant authorisation.

- *Testing phase.* The aim of the testing phase is to enable implementation of the tested financial innovation on the Slovak financial market in accordance with the testing plan.

- *Termination of participation* in the regulatory sandbox is based on final report of the participant delivered to the NBS and the subsequent consultation with the NBS.

The period for which entities can remain in the regulatory sandbox is 6 months in the conditions of the Slovak Republic, which represents the maximum period for testing the innovation (however, the preparatory phase is not included in this period). If necessary, the NBS may extend it accordingly, for a maximum of another 6 months. Testing of financial innovation does not affect the obligations imposed on the participant by special regulations. From the point of view of the limit of participation of entities in the regulatory sandbox, we do not see the definition of the maximum possible number of participants in the sandbox in the conditions of the Slovak Republic. Despite that, in accordance with the Operating Rules of the Regulatory Sandbox, if the applicant meets the conditions for participation, but several participants are involved in the regulatory sandbox, the NBS may postpone the applicant's entry into the regulatory sandbox for a later date depending on the NBS's capacity. The number of participants in the sandbox thus depends on the

²⁸ https://www.nbs.sk/_img/Documents/_Dohlad/Fintech/sandbox/Pravidla-sandbox-NBS.pdf.

capacity of the NBS at a given time, which partially reduces the legal certainty of those interested in participating.

The setting of the regulatory sandbox in the conditions of the Slovak Republic also enables cross-border participation in other regulatory sandboxes. In the event that a participant expresses an interest in cross-border testing, the application shall state in which regulatory sandboxes in other contracting states of the Agreement on the European Economic Area or in other states with which the NBS has concluded a cooperation agreement, the participant is interested in testing. Subsequently, the NBS contacts the relevant supervisory authorities and agrees with them on further action in relation to cross-border testing. However, the expression of this interest does not constitute automatic admission to other sandboxes, as the entity must meet the criteria for entry into other regulatory sandboxes according to the relevant rules of the given regulatory sandbox.

5. Conclusion

The article analyses the operation of innovation facilitators in the conditions of the Slovak Republic, while the establishment and operation of the sandbox is evaluated mainly on the basis of set criteria formulated on the basis of analysis of published studies focused on the issue of regulatory sandbox in terms of various legislation. Simultaneously, based on the analysis of summarized advantages and disadvantages of regulatory sandboxes, it outlines problematic areas that may relate to the operation of the regulatory sandbox in the conditions of the Slovak Republic. It is essential to note that, as this is an ongoing process of establishing and operating regulatory sandboxes, it is not possible to draw clear conclusions at this time. This fact applies multiple times in the case of the analysis of the regulatory sandbox in the conditions of the Slovak Republic, as the regulatory sandbox was established in the Slovak Republic at the beginning of 2022 and therefore the actual outputs of its operation are not yet at our disposal. The benefit lies in particular in providing a valuable basis for horizontal comparison, on the basis of which it will be possible to formulate clearer conclusions and proposals *de lege ferenda* after a certain period of operation of regulatory sandboxes, which provides room for further scientific research. Of the most crucial findings based on the above approach, we would like to mention the following. Having regard to the evaluation of the innovation hub in the conditions of the Slovak Republic as a possible drawback that may discourage those interested in participating in the innovation hub, is a provision within the rules of operation of the innovation hub, according to which operating on the financial market in certain circumstances may be a criminal offense. As far as we are concerned, although this provision implicitly follows from the applicable legislation within the financial market and is a logical personification of the established legislation, it may have a demotivating effect on applicants for participation in the innovation hub. In case of doubt, it is possible that the applicants for the consultation would rather give up the consultation than risk that their innovative activity (if it is already in some phase of implementation) will be assessed as unjustified (without

permission) and additionally will have to face sanctions from the NBS. From the point of view of setting the operation of the regulatory sandbox in the conditions of the Slovak Republic, it is possible to understand the ambiguity of defining the maximum number of entities in the regulatory sandbox as a certain negative (the maximum number depends on the NBS capacity in a given time period). On one hand, there is no strict reduction in the number of entities involved, which negates one of the disadvantages of sandboxes (if the regulatory sandbox allows only a limited number of entities to be tested, it may not have a sufficient impact on financial innovation and potentially distort competition) to the degree of legal certainty of applicants. The regulatory sandbox in the conditions of the Slovak Republic has no limitation in the form of the possibility of implementing financial innovation on a limited group of entities (clients), so the disadvantage in the form of creating a picture of the actual impact of tested innovations is relevant only if such a limitation is determined by the sandbox participant. One of the most important aspects of the operation of the regulatory sandbox in the conditions of the Slovak Republic is the fact that participation in the regulatory sandbox is conditioned by the existing permit from the NBS as the national regulator or by the existence of an outsourcing agreement concluded with the supervised entity. This procedure eliminates the reputation risk of the regulator and preserves the possibility of the regulator to impose sanctions on the participant in the regulatory sandbox in case of violation of the legislation in force. On the other hand, this approach greatly limits the range of entities that can participate in the regulatory sandbox, precisely in terms of innovation. Entities that provide services of an innovative nature are often completely out of regulation in the conditions of the Slovak Republic (e.g. peer to peer lending services) and thus also without the possibility of participating in the regulatory sandbox.

Bibliography

1. Agnieszka Butor-Keler, Michał Polasik. "The role of regulatory sandboxes in the development of innovations on the financial services market: the case of the United Kingdom," *Ekonomia i Prawo. Economics and Law*, no. 4 (2020): 621–638. DOI 10.12775/EiP.2020.041.
2. Ahern, DM. "Regulators nurturing fintech innovation: global evolution of the regulatory sandbox as opportunity based regulation." *European Banking Institute Working Paper Series*, no. 60. (2020) Frankfurt: European Banking Institute. <http://ijlt.in/wp-content/uploads/2020/11/IJLT-152-91-124.pdf>.
3. Ahmad Alaassar, Anne-Laure Mention, Tor Helge Aas. "Exploring a new incubation model for FinTechs: Regulatory sandboxes." *Technovation*, no.103 (2021):1-14. DOI: 10.1016/j.technovation.2021.102237.
4. Ahmad Alaassar, Anne-Laure Mention, Tor Helge Aas. "Facilitating innovation in FinTech: a review and research agenda" *Rev Manag Sci* (2022). <https://doi.org/10.1007/s11846-022-00531-x>.
5. Allen, Franklin, Goldstein, Itay, Jagtiani, Julapa, Lang, William W. "Enhancing Prudential Standards in Financial Regulations." *Journal of Financial Service Research* 49, no. 2-3 (2016): 133-149. <https://doi.org/10.1007/s10693-016-0253-2>.
6. Allen, Hilary J. "Regulatory Sandboxes." *George Washington Law Review* 87, no. 3 (2019): 579-645.

7. Bromberg Lev, Godwin, Andrew, and Ramsay Ian. "Fintech Sandboxes: Achieving a Balance Between Regulation and Innovation." *Journal of Banking and Finance Law and Practice* 28, no. 4 (2017): 314-336.
8. Brown, Eric, Pirotska, Dora. "Governing Fintech and Fintech as Governance: The Regulatory Sandbox, Riskwashing, and Disruptive Social Classification" *New Political Economy* 27, no. 1 (2021): 19-32.
9. Buckley, Ross P., Arner, Douglas W., Zetsche, Dirk A., Gibson, Evan C. "Building Australia's Fintech Ecosystem: Innovation Hubs for a Competitive Advantage" *Journal of banking and Finance law and practise* 31, no. 2 (2020): 133-140.
10. Clarke, Chris. "Platform lending and the politics of financial infrastructures" *Review of International Political Economy* 26, no.5. (2019): 863-885.
11. Dai, Junxun. "Regulatory Capital Arbitrage and the International Financial Crisis", *Proceedings of China-Canada Industry Workshop on Financial Engineering and Enterprise Risk Management* (2009):16-20.
12. Deirdre Ahern. "Regulatory Lag, Regulatory Friction and Regulatory Transition as FinTech Disenablers: Calibrating an EU Response to the Regulatory Sandbox Phenomenon." *European Business Organization Law Review* 22, no. 3, (2021): 395-432.
13. ESAs Joint report FinTech, *Regulatory sandboxes and innovation hubs*, <https://www.eba.europa.eu/sites/default/documents/files/>.
14. European Commission, *FinTech action plan: For a more competitive and innovative European financial sector* (European Commission, 2018) https://ec.europa.eu/info/publications/180308-action-plan-fintech_en.
15. Goodhart, Charles A. E., Lastra, Rosa M. "The boundary problems in financial regulation", *Research Handbook on International Banking and Governance* (2012): 321-322.
16. Laufer, WS. "Social accountability and corporate greenwashing" *Journal of Business Ethics* 43, no. 3 (2003): 253-261.
17. Marjosola, Heikki. "The problem of regulatory arbitrage: A transaction cost economics perspective." *Regulation & Governance* 15, no. 2 (2021): 388-407.
18. Minto, Andrea, Prinz, Stephanie, Wulff, Melanie. "A Risk Characterization of Regulatory Arbitrage in Financial Markets" *European Business organization law review* 22, no.4 (2021): 719-752.
19. Pollman, Elizabeth. "Tech, Regulatory Arbitrage, and Limits", *European Business organization law review* 20, no. 3 (2019): 567-590.
20. Ringe, Wolf-Georg, Ruof, Christopher, "Regulating Fintech in the EU: the Case for a Guided Sandbox." *European Journal of Risk Regulation* 11 (2020): 604-629,
21. Ross Buckley, et al. "Building Fintech Ecosystems: Regulatory Sandboxes, Innovation Hubs and Beyond." *Washington University Journal of Law & Policy*, vol. 61, (2020): 055-098.,
22. Saule T. Omarova. "Technology v Technocracy: Fintech as a Regulatory Challenge" *Journal of Financial Regulation* 1, no.6 (March 2020): 75-124. <https://doi.org/10.1093/jfr/fjaa004>.
23. Study requested by the ECON committee: Regulatory Sandboxes and Innovation Hubs for FinTech, available at [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652752/IPOL_STU\(2020\)652752_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652752/IPOL_STU(2020)652752_EN.pdf).
24. Zetsche et al, "Regulating a Revolution: From Regulatory Sandboxes to Smart Regulation" *Fordham Journal of Corporate & Financial Law* 31, (2017): 31-104.