STUDIA JURIDICA ET POLITICA JAURINENSIA
VOL. 12, NO. 2, 2025, 73–91.
DOI: 10.71100/STUDIA.2025.2.5

REGULATORY APPROACHES TO FINTECH AND THE CHALLENGES OF FINTECH-REGULATION ON EXAMPLE OF SLOVAKIA*

ČUNDERLÍK, ĽUBOMÍR[1]

ABSTRACT

The article summarizes existing regulatory approaches to FinTech-based financial innovation. In this context, it is important to point out that, in general, there is no legal regulation at the EU level that would impose on Member States which regulatory approach they should choose and apply in relation to FinTech. The choice of the appropriate regulatory approach is therefore left to the Member States. Against this background, the author identifies the regulatory approach to FinTech applied in the Slovak Republic, while the platforms for institutional dialogue between the national regulator (National Bank of Slovakia) and FinTech companies are analyzed separately. The article also illustrates the regulatory trend within the EU that may prove decisive for the field of FinTech by reference to a specific regulatory instrument (the EU Regulation on Markets in Crypto-assets – MiCAR).

KEYWORDS FinTech Regulation, Slovakia, National Bank of Slovakia (NBS), Regulatory Sandbox, Markets in Crypto-assets Regulation (MiCAR)

1. Introduction

This article addresses two areas of financial market regulation. Accordingly, the article is divided into two relatively independent parts. In the first part, the author presents regulatory issues and demonstrates a new regulatory trend in the EU in the field of FinTech and the way in which it is addressed in the Slovak Republic through the so-called Implementation Act, using the example of a specific instrument of EU regulation in the field of crypto-assets (MiCAR). The author seeks to define the basic features of such regulation and its contribution to the regulation of the financial market. The main hypothesis of this part of the

* This paper was written as part of the VEGA project No. 1/0212/23, entitled "Financial innovations as a determinant of current and anticipated regulation in the financial market (challenges and risks)."

[1] Professor at Comenius University, Faculty of Law, Department of Financial Law, Bratislava, Slovakia.

article is formulated as follows: "MiCAR represents a new generation of EU regulatory instruments that can be referred to as regulatory codes."

In the second part, the author examines existing regulatory approaches to financial innovation, abbreviated as FinTech. In this context, it is important to note that, in general, there is no legislation at EU level that would impose on Member States the regulatory approach to be chosen and applied in relation to FinTech. For this reason, the choice of the appropriate regulatory approach is currently left to the Member State or its national financial market regulator[2]; accordingly, the author seeks to identify the regulatory approach to FinTech adopted in the Slovak Republic. The author analyses the approaches through which the national regulator addresses FinTech regulatory issues, specifically by examining the so-called platforms for institutional dialogue between the national regulator and FinTech companies, their effectiveness, and the reasons for their creation (i.e. the Centre for Financial Innovation, the Innovation Hub, and the Regulatory Sandbox). The main hypothesis of this part of the article is as follows: "The chosen regulatory approach of the National Bank of Slovakia (NBS) is adequate and sufficient for FinTech companies in the Slovak Republic."

The following scientific methods were used in the article: the analysis of relevant legislative texts and publicly available documents of the NBS, the description and synthesis of the legal situation, and deduction. The article is primarily an abstract-analytical contribution, without any claim to predict future developments.

2. FinTech and FinTech regulatory issues

The fundamental problem of regulation is the definition of its subject matter, i.e. the identification of what constitutes financial innovations (Ford, 2021, p. 69). The NBS defines financial innovation as a new technology-based approach to finance that can lead to a new business model, workable solution, process, or product and can have a significant impact on financial markets, institutions, and the provision of financial services to clients. "FinTech" is a shortened version of the term "Financial Technology" and generally refers to technological innovation applied to the provision of a diverse range of financial services (e.g. payment services, banking, investment services, or insurance). Substantively, the NBS distinguishes within FinTech between business models (alternative payment methods, crowdfunding, robo-advice, crypto-assets, InsurTech insurance, algorithmic trading) and technologies (smart contracts, biometrics, artificial

[2] The financial market regulatory authorities in the Slovak Republic are the Ministry of Finance and the National Bank of Slovakia, the latter of which is also the financial market supervisory authority. Both bodies are legislative institutions that participate in the legislative process of law-making. In addition, they are bodies of secondary regulation, which they are empowered to issue directly *ex constitutione*. (Constitution of the Slovak Republic, art. 56, para. 1; art. 123; See also Bujňák et al., 2023, pp. 51–52, 66; Čunderlík, 2024, p. 1505)

intelligence, big data, distributed ledger technology (DLT), mobile wallets, and cloud computing) (Národná banka Slovenska, 2025a)[3].

The Ministry of Finance defines FinTech as any financial innovation, regardless of the technology used, that may lead to new business models, applications, processes, or products that have a significant impact on financial markets, financial institutions, and the delivery of financial services. In this context, it identifies areas with potential for growth in FinTech innovation (e.g. payment services, banking, and insurance) (Ministerstvo financií Slovenskej republiky, 2025).

The growth of FinTech has been fuelled by start-ups taking advantage of the distrust of the public and financial markets towards the financial services industry following the 2008 financial crisis and the associated rise in unemployed professionals looking for new ways to apply their skills (Toman, 2022, p. 266). Not every financial innovation is technology-based and may therefore not fall under the term FinTech[4]. The decisive criterion for determining whether a financial service falls under FinTech is not solely the fact that it is innovative or atypical. An innovative (and atypical) business model is an enhancement of an existing model or a modernised renewal of a defunct model (a "renaissance" of the business model) (Čunderlík & Čunderlík Čerbová, 2019, p. 17).

The long-term problem with FinTech regulation is the vagueness of its subject matter, which remains difficult to identify despite the above definitions provided by the regulatory and supervisory authorities. Innovations can take different forms (such as artificial intelligence ("AI")) and may even be disruptive. However, not all innovation is necessarily disruptive. As Jongmoo and Ozkan observe, innovations can occur as part of an evolutionary progression based on existing ideas or processes rather than as a result of a revolutionary overhaul of existing systems. In ordinary communicative usage, either type of innovation can be disruptive if it leads to rapid change in business that can dramatically alter the market (Jongmoo J. & Ozkan, 2019, p. 4). On the other hand, Bower and Christensen argue that disruptive innovation must create new markets before challenging the mainstream market (Bower & Christensen, 1995).

In contrast, it can be argued that FinTech, in principle, does not (yet) have the potential to be a disruptive technology because individual financial technologies cannot, for example, pose a threat to the financial system,

[3] Omarova stated that FinTech is an umbrella term for a wide range of recent technological innovations, e.g. digital crowdfunding, cryptocurrencies, blockchain or distributed ledger technology (DLT), artificial intelligence and machine learning, and big data analytics. (Omarova, 2021, p. 44)

[4] In this context, Heseková Bojmírová argues that the term FinTech is narrower than the term financial innovation (Heseková Bojmírová, 2023, p. 142).

although they can disrupt the smooth functioning of a segment of it in the event of a technical failure or a cyber-attack[5], given that the rather traditional way of delivering financial services[6] is still prevalent. However, it is clear that financial innovation can be a double-edged sword. For the purposes of regulation, therefore, the immediate enactment of appropriate legislation is neither theoretically nor practically ruled out as a means of regulation. Nevertheless, a more plausible method is to adopt incremental partial regulations, test them in practice, then evaluate them and modify them if necessary (Hodás, 2022, p. 87).

The implementation of FinTech, or of any financial innovation in general, does not automatically mean that existing ways of providing financial services are sidelined or disappear altogether. While this is a revolutionary process, as mentioned above, it cannot be compared to the introduction of the Dreadnought battleship before World War One[7]. Ultimately, it is also a democratising process, for example because it increases the range of channels for the distribution of financial services, the use of financial services, or the trading of financial products. In the following, the terms FinTech and financial innovation are used synonymously.

The second problem relates to technology per se: how can technology be regulated in such a way that legal regulation does not limit innovation? Too much regulation has the potential to "kill" the development of a new technology at birth. Conversely, under-regulation inevitably sets the stage for compromising the full range of values that the regulator is supposed to protect (Hodás, 2022, pp. 9, 28). In delineating existing regulatory approaches as applied to FinTech, traditional research on methods of regulation in financial market law as part of financial law recedes into the background (Mrkývka, 2012, pp. 66–70, 197–198; Čunderlík, 2017, p. 17; Karfíková et al., 2018, pp. 31–46), as it may appear to be purely theoretical and suitable only for pedagogical purposes. This research is based on the description of financial law rules and their characteristics. In practice, the applied classification of regulatory methods is based on the criterion of which approach (rules of conduct) most effectively achieves the goal of the regulation in question. Such a classification emphasizes

[5] An example would be a hacker attack or a prolonged outage of the internet banking system of a systemically important credit institution. The situation does not change even with the introduction of partial regulation of selected areas of FinTech for crypto-assets (MiCAR) or crowdfunding (ECSP-Regulation), as these are still not major investment channels.

[6] In the Slovak Republic, the above statement is also related to the fact that banks are the dominant service providers on the financial market.

[7] The launch of the battleship HMS Dreadnought in September 1906 in Great Britain made all previous battleships immediately technologically obsolete. The aforementioned battleship caused a technical revolution in the construction of battleships by all major naval powers, with its name coming to be used to designate that type of battleship (Hynek & Klučina, 1986, p. 37; Burt, 2022, pp. 20–41)

the achievement of the objective of regulation, and its methods are still evolving in practice.

In Western financial theory, Omarova refers to the technocratic regulatory paradigm in the context of financial regulation: at the core of this paradigm is the fundamental division of powers and responsibilities between private market participants and the sovereign public acting through various government agencies. She defines it as the "New Deal settlement in finance". She considers this regulatory model to be no longer adequate today, as private innovation is pushing financial markets beyond the ability of technocrats to provide the expected level of oversight (Omarova, 2021, p. 46). For the purposes of the present analysis, however, her model appears too abstract to be suitable for our research purposes.

Naturally, the national choice of regulation, especially in financial market law, is based predominantly on EU regulation and the need for approximation of legal rules in the Member States. Financial market law should therefore be thought of as the Community regulation of financial markets, which is determined by a specific legislative process in the financial services sector, referred to as the "Lamfalussy process". The different methods of harmonization are based on EU regulatory instruments. Accordingly, we can distinguish between the transposition and implementation of European rules with minimum standards and so-called full harmonization, which aims at unification.

In recent years, an increasing trend towards the adoption of European regulations (EU-regulations) instead of European directives can be identified in the norm-setting regulation of EU law. A regulation is adopted when a unified (uniform) regulation is needed throughout the EU, as no transposition into national law is required; moreover, such a regulation eliminates regulatory arbitrage caused by different degrees of harmonization. In certain areas, pressure to adopt a new EU regulatory framework represented by code-type regulations is remarkable. The adoption of such new comprehensive provisions in the form of regulations is a new regulatory trend that has emerged in the regulation of financial services, specifically within the FinTech sector. These regulations stipulate their own definitions, procedures, sanctioning regimes, conduct of business requirements, market transparency rules, rules relating to clients, and so forth. Typical elements of such code-type regulation are already recognizable in the Regulation on OTC derivatives, central counterparties and trade repositories (EMIR) or in the Regulation on market abuse (MAR). Examples of code-type regulations in the FinTech area include the Markets in Crypto-assets Regulation (MiCAR), the Regulation on European Crowdfunding Service Providers (ECSP), and the Regulation on digital operational resilience for the financial sector (Digital Operational Resilience Act/DORA).

In the Slovak Republic, it is interesting to demonstrate the implementation of this type of regulation, which is the result of this European regulatory trend. The implementation of an EU regulation is generally carried out through legislative amendments, as stipulated in the annex to the Legislative Rules of the Slovak Government (that is, a reference to the relevant EU-Regulation is introduced as a special regulation). However, in the case of MiCAR, a specific act (with its own title and a separate legislative article) has been adopted to implement the aforementioned regulation. This is Act No 248/2024 Coll. on Certain Obligations and Competencies in the Field of Crypto-assets and on Amendments and Supplements to Certain Acts (the so-called Implementation Act). In our opinion, this is a case of "appropriate adaptation" of national norm-setting to the regulatory trend in the EU.

3. Regulatory approaches to FinTech-based financial innovation

In the financial services sector, regulatory practice is determined by the way in which the objective of regulation is achieved, i.e. the construction of the legal norm that the legislator intends to employ is decisive. From this perspective, in the financial services sector we distinguish between rule-based (Mazúr, 2017, pp. 27–29)[8] and goals-based regulatory methods (the latter also being referred to as principle-based, outcome-based, or performance-based), or even a combination of these (a hybrid regulatory method). According to the theoretical classification of legal norms in our legal environment, in contrast to norms of a classical structure (used in the rule-based method), teleological (final) norms are applied in the goals-based method. Teleological norms do not directly determine the rule of conduct but only set the goal to be achieved. The method of achieving the goal is left to the addressee of the norm. This type of regulatory standard is typical of EU law (Fábry et al., 2019, pp. 88–89; Gerloch, 2021, p. 75), which leave room for Member States to decide how to achieve the objective. On the other hand, in our legal environment the use of such standards is neither common nor desirable.

The difference between rules and principles lies in their specificity, which results in a different degree of discretion for the regulator. Principles serve as interpretative tools; they enshrine abstract objectives, outputs, and outcomes that the regulator expects (hence the terms outcome-based and performance-based). Principles make it possible to achieve the "spirit of the law". Rules determine a precise standard of behaviour. However, it may not be obvious from the wording of the rules what objectives are pursued by the behavioural rule.

[8] Similarly, performative regulation and impact assessment regulation have been cited as alternatives to traditional prescriptive regulation (Hodás, 2022, pp. 29–32).

Moreover, compliance with exact rules may degrade to "mindless" compliance with a standard (legal norm). They are therefore less suitable for regulating dynamic phenomena because they can easily be circumvented by changing behaviour. Regulation by rules is always "ex post" in relation to new phenomena (Mazúr, 2017, pp. 28–29).

Sejkora summarizes the specific advantages and disadvantages of both methods. For the rule-based method, he lists the following advantages: higher rigidity, case-by-case consideration, detail and predictability of adopted legal acts, which lead to legal certainty, improve the planning of the regulated entity's activities, simplify and accelerate the application of the law (thereby saving time), and reduce the subjective bias of the public authority (arbitrariness). Detailed regulation allows the involvement of less educated or experienced personnel in the application process (thereby saving personnel costs). He mentions as disadvantages, for example, the lack of possibility for the legal order to adapt to changed conditions, whereby a strict rule may create an obstacle to innovation; regulated entities are not forced to think about the objectives of such regulation, but instead just blindly and formally comply with it; there is little discretion for the public authority; and regulated entities have the possibility to circumvent strict rules by adopting different forms of behaviour (Sejkora, 2023, pp. 29–32).

It is typical for the goals-based method that the standard contains a broadly defined goal. It has the advantage of forcing the addressees to think more about how to achieve the regulatory goal, creating room for experimentation with innovation, and requiring less need for amendments to statutory provisions (thus enhancing flexibility). Among the disadvantages Sejkora includes, for example, the potential vagueness of the defined rule of conduct, the related lack of legal certainty, the potentially increased cost of legal advice, and the related problems of interpretation and application of the rule (Sejkora, 2023, pp. 32–37).

Above all, the choice of the appropriate method must be technologically and ideologically neutral. At the same time, we share the view that the use of technology in general must be subject to the ethical principles that are the essential features of 'good' innovation (i.e. transparency, inclusion, responsibility, impartiality, reliability, security, and privacy) (Čunderlík Čerbová, 2021, pp. 27–28). As mentioned above, the choice of an appropriate regulatory method in the FinTech sector must not stifle or hinder the development of this phenomenon and should, where possible, encourage it, insofar as it is aimed at improving financial infrastructure and the position of investors (financial consumers). In this context, the best methodological approach for selecting the appropriate regulatory method appears to be to divide it into rule-based, goals-based, and hybrid methods. In our legal environment, a combination of the two methods

mentioned above (a hybrid method) may be considered appropriate, with the predominance of the rule-based method, the application of which is traditional in the continental legal environment.

Specific regulatory approaches to financial innovation that combine a normative approach with an institutional and functional approach should also be mentioned in this context. Thus, it is not necessary to explicitly adopt normative approaches as a *conditio sine qua non*. In relation to AI, the following are mentioned as methodological regulatory approaches: regulation through law (hard law), regulation through soft law, and regulation through technical norms (standards). Regulatory approaches to AI through hard law can take different forms: 1. a risk-based model, 2. a general principles-based model, 3. a sectoral model, 4. a hybrid approach (Mesarčík et al., 2024, pp. 36–40). However, we do not consider this classification to be critical for the purposes of our research, because by its nature, financial services regulation is sectoral regulation, and this approach does not define the mode or methods of regulation to be applied in that sector (meaning the financial services sector) to achieve the objective.

Sejkora lists five regulatory approaches to financial innovation: 1. leaving financial innovation out of regulation (laissez-faire), 2. a formal approach based on specific regulation, 3. a supervisory discretion approach, 4. an experimental approach, 5. smart regulation (mutual learning between the supervisory authority and financial service providers, which is a combination of the previous approaches) (Sejkora, 2023, p. 40). It is essential to state that the first approach stands outside the goals-based and rule-based regulatory approaches. Some of these approaches build on both methods and a combination of them, but can also be the basis for the next stages of regulation. For example, the experimental approach is the basis for the creation of regulatory sandboxes.

Heseková Bojmírová adopts from the World Bank's report Regulators' Responses to FinTech four basic approaches of regulators to FinTech: 1. wait and see, 2. test and learn, 3. an approach based on innovation intermediaries, 4. an approach based on direct regulation. The wait and see approach is based on monitoring FinTech without regulatory intervention, the test and learn approach is based on testing innovation, but the degree of regulation is determined by the financial market itself, the innovation intermediaries approach (innovation hub, regulatory sandbox) is managed directly by the regulator, and finally the direct regulation approach is based on two options: modification of the existing regulatory framework or the adoption of a new regulatory framework (Heseková Bojmírová, 2023, pp. 164–172).

The aforementioned classifications of regulatory approaches to FinTech overlap in content across types and are interchangeable and applicable for the purposes of our research.

We will make particular mention of "innovation intermediaries" (innovation hub, regulatory sandbox). This experimental approach allows the regulator to test whether a financial innovation falls under existing regulation in the state, or whether specific regulation for financial innovation must be adopted. The innovation hub is intended to serve as a contact point for communicating with the relevant supervisory authority and for obtaining non-binding advice (guidelines) on the application of regulatory requirements (e.g. licensing or registration requirements, supervisory expectations). A regulatory sandbox is an environment that allows for the testing of innovative financial products, financial services, and business models in accordance with a testing plan approved by the supervisory authority (financial market regulator). A regulatory sandbox may also allow for the use of statutory supervisory discretion (depending on the relevant EU or national law), but it cannot waive regulatory requirements (European Supervisory Authorities [ESAs], 2018, p. 5).

A regulatory sandbox creates room for experimentation in the regulatory area and allows for institutional control over sandbox participants, while participation in this environment is time-limited. The specific scope and stages of the regulatory sandbox cycle may vary from state to state.

Sejkora stresses that the innovation hub is usually the first step in institutionalising the regulatory environment in relation to innovation, and its establishment is a signal to the market that the supervisor is ready to discuss innovation with the market. Sejkora's definition of a regulatory sandbox is taken from the cited ESAs report, stating that this instrument of regulatory access cannot be described as an instrument of deregulation or of lowering the standards of the legal framework (Sejkora, 2023, pp. 1–3). The roles and competences of the regulatory sandbox and the innovation hub may differ between EU Member States, while there is also no common view in the EU on their creation and legal anchoring.

The advantages of regulatory sandboxes are undoubted and can be summarized as follows:

- supporting the development of innovative technologies and stimulating their use,
- reducing regulatory arbitrage,
- reducing information asymmetries between the regulator and financial market participants,

- the use of a regulatory sandbox enhances the credibility of the participating financial services provider,
- the opportunity to test innovations in a safe and isolated environment (Heseková Bojmírová, 2023, pp. 151–153).

We can also summarize the disadvantages of using a regulatory sandbox as follows:

- it allows only a limited number of entities to be tested and therefore may potentially distort competition,
- it is problematic to set non-discriminatory and transparent entry criteria,
- it is questionable whether the regulatory sandbox can provide a realistic picture of the actual impact of the tested financial innovations when used in practice,
- participation in a regulatory sandbox may give the impression that the participant is a fully regulated entity (riskwashing) (Heseková Bojmírová, 2023, p. 153).

In the following, we will focus on the approach chosen for FinTech by the Slovak Republic.

4. Regulatory approach to FinTech in the Slovak Republic

The NBS is undoubtedly the regulator of the financial market in the Slovak Republic. As a central bank, it performs a number of tasks and competences. In theory (Nagy, 2022, p. 28), the basic functions of a central bank today include the following:

a) bank of issue (administrative monopoly on the issue of legal tender),
b) the supreme monetary policy authority (manages monetary developments by regulating the quantity of money in circulation and determining the exchange rate of the domestic currency against foreign currencies, with the objective of price stability),
c) bank of banks (bank for the commercial banks: sets reserve requirements, lends as lender of last resort, acts as a clearing house),
d) bank of the state (maintains treasury accounts, represents the state in negotiations with supranational banks and monetary institutions),
e) banking regulation and supervision (authorization to enter the financial market),
f) currency reserve manager (management of gold and foreign currency claims),
g) coordination and supervision of payment systems.

These functions are sometimes supplemented by other functions, or some of these functions are not performed by the central bank because they are not recognized by national law (banking supervision) or because, as a result of

membership in a monetary union, the central bank's activities have been transferred to another entity (activities of the bank of issue and the conduct of monetary policy).

In the FinTech context, the above classification shows that the functions of a central bank per se do not include the regulation of financial innovation. The substantive link between financial services and new technologies logically requires that the entity called upon to address this challenge be the financial market regulator (i.e. the NBS and the Ministry of Finance).

In the process of creating a functional and organizational framework for the implementation of FinTech in the Slovak Republic, there were professional-level discussions with the regulator in May 2020 as to whether a legislative change to Act No. 566/1992 Coll. on the National Bank of Slovakia was also necessary for the NBS to perform its tasks in this area[9]. The need for a legislative amendment was eventually abandoned. The provision in § 2(1)(e) of the Act on the NBS foresees that other activities of the NBS are regulated by special acts (to which, inter alia, reference is also made to Act No. 747/2004 Coll. on Financial Market Supervision). Act No 747/2004 Coll. on Financial Market Supervision is therefore generally accepted as the legal basis for the tasks of the NBS in the area of FinTech. In particular, this is the case under § 1(3)(a) point 1 and 2 of the Supervision Act, according to which the NBS, when supervising supervised entities, establishes prudential rules, safe operation rules and other requirements for the business of supervised entities, and supervises compliance with the provisions of legislation applicable to supervised entities or their activities. In addition, § 1(3)(j) states that the NBS shall carry out other activities and powers in the financial market area pursuant to this Act and special regulations. The FinTech issue can thus be subsumed under the subject matter of the Supervision Act. This legal framework determines the competence of the NBS exclusively in relation to supervised entities. The subsequent internal organisational and functional arrangement of the competences of the relevant organisational units of the NBS therefore focuses precisely on such supervised (regulated) entities.

Although the Ministry of Finance established the Centre for Financial Innovation in February 2018, which serves as a platform for the exchange of information and experience between the Ministry, other public authorities, entrepreneurs in the financial sector and interest associations, its role in the FinTech field is currently only complementary, and the regulatory leader in this issue is the NBS.

[9] In relation to the Innovation Hub, consideration was given to adding a new paragraph 4 to § 2 (defining the tasks of the NBS in the field of financial innovation, legally defining the concept of financial innovation, and providing for cooperation with other national and EU authorities) and to introducing a new § 35b (establishing a contact point for financial innovation , formalising the Innovation Hub, and regulating cooperation in the provision of information).

The declared priority activity of the Centre is to map the environment influencing the introduction of new technologies in the financial market, to identify shortcomings or opportunities for improvement in this environment, and to actively remove barriers to the establishment and operation of FinTech companies in Slovakia (Ministerstvo financií Slovenskej republiky, 2025).

The NBS has established the Innovation Hub of the NBS as of 1 April 2019. The Innovation Hub provides those with a genuine FinTech business plan, as well as established financial market players, with the opportunity to have a dialogue with NBS experts from various fields who will help them understand and properly implement innovations in financial market regulation. A contact form is used to start communication, allowing the NBS to get a basic overview of the FinTech intent of the interested service provider. The dialogue is two-way, and therefore the regulator also receives information on the state of FinTech and its development. In doing so, the NBS has chosen an innovation intermediary-based approach in practice, combined with elements of the experimental and direct regulation approaches. Communication through this contact point is not a substitute for, and does not constitute, the provision of legal services, nor can it be used for self-promotion of the interested service provider (applicant) and its services. The NBS has established evaluation criteria for admittance to the Innovation Hub; these criteria are distinctiveness and innovation, knowledge of the applicable regulatory framework, the need to cooperate with the Innovation Hub, and the benefit to the consumer and the financial system (Národná banka Slovenska, 2025a). The evaluation of the criteria implies answering all the key questions in the contact form. Complex enquiries may take up to 90 days to be processed. To help assess the criteria, positive indicators (e.g. whether the intended service meets the definition of financial innovation or will increase competition in the financial system, or whether the applicant has demonstrated that it has examined the service's compliance with the existing regulatory framework) and negative indicators are defined (e.g. the provision of the intended service will have an adverse impact on consumers or tends to circumvent regulation). An applicant's submission will be addressed if all positive indicators are met (Národná banka Slovenska, 2025a).

From January 2022, the NBS has launched the Regulatory Sandbox of the NBS. The regulatory sandbox is a platform that helps a participant (natural person or legal entity) to set up a financial innovation in accordance with the generally binding legislation under the NBS's jurisdiction on a consultative basis and allows it to be tested (Národná banka Slovenska, 2022, point 3(a)). The aim of the platform is to facilitate the implementation of financial innovations on the Slovak financial market and to help the regulator better understand financial

innovations. It is a regulatory compliance space, hence the use of the adjective "regulatory" in its name.

A crucial practical aspect of the regulatory sandbox is that potential regulatory breaches that could constitute administrative offences are communicated during the conduct of tested services based on financial innovation, giving the FinTech entity space to remediate. Within the traditional supervisory model, regulatory breaches are communicated by the supervisory authority to the relevant entity ex post, when the breach has already occurred and has been detected by the supervisory authority (regulator), with the associated mandatory sanctioning.

Prior to the establishment of the regulatory sandbox, the NBS conducted a public consultation (Národná banka Slovenska, 2020, p. 32). As part of its evaluation, the issue of the participation of unsupervised entities in the regulatory sandbox was discussed. According to the responses received, the added value of the participation of these entities would be to improve their position on the financial market as well as to deepen the NBS's knowledge of their activities. On the other hand, there was a reputational threat to the NBS arising from the risk that an unsupervised entity could not be held liable for the tort of unauthorized business, even if it carried out a regulated activity. Finally, the design of the regulatory sandbox is based on its partial opening also to those participants that are not supervised entities (numerus clausus). These are the following categories of participants: 1. the applicant for authorization (later the supervised entity), 2. an entity supervised pro futuro (carries out an activity that will be subject to national/European legislation that has not yet entered into force or is not yet applied), 3. a service provider (third party which, on the basis of an outsourcing contract concluded with the supervised entity, applies a procedure, provides a service or performs an activity for which the supervised entity is authorized). In addition to these entities, a supervised entity and a foreign supervised entity may naturally also be participants (Národná banka Slovenska, 2022, point 4).

It follows that the regulatory sandbox in the NBS ecosystem is tied to the relevant licence and is cross-sectoral (its scope is defined as extending to all sectors of the financial market). This factual situation is justified by the relatively small Slovak financial market and the integration of supervision into the NBS (Štrkolec, 2022, p. 410). In this context, it should be noted that regulatory sandboxes in larger countries may also be limited to selected sectors of the financial market and may not cover the entire financial market (Sejkora, 2023, p. 5).

The functioning of the regulatory sandbox in the NBS is regulated by procedural rules adopted as non-legislative material of the NBS, which is in line with Act No. 747/2004 Coll. on Financial Market Supervision (the compliance of the rules with this Act is declared in point 1 of the rules) (Národná banka Slovenska, 2022). The condition of admission to the sandbox is the submission of an application form by the interested party, which may be a natural person or a legal entity, which becomes a participant of the sandbox after being granted access to it. The operation of the regulatory sandbox means the process of the NBS related to the assessment of the application. The process takes place in five phases: 1. submission of the application, 2. information meeting, assessment and decision on the application, 3. preparation phase (consultation and determination of the testing process - testing plan), 4. testing, 5. termination of participation.

Entry into the regulatory sandbox is subject to the capacity of the NBS, which may postpone entry to a later date if several participants are in the sandbox at the same time. Within two months of receipt of the application, the NBS will make a decision on the application and inform the applicant whether they can enter the sandbox. After the application has been submitted, the NBS will convene an information meeting with the applicant to obtain more detailed information. Entry into the regulatory sandbox is subject to the fulfilment of the conditions for participation, which include in particular the fulfilment of the entry criteria:

- readiness of the candidate to participate in the regulatory sandbox and readiness of the financial innovation for testing (e.g. the candidate demonstrates technical readiness, security measures, an early exit plan, and the ability to meet regulatory requirements, and also identifies risks and mitigation measures),
- the existence of a need for testing,
- innovativeness,
- positive impacts on clients in the Slovak financial market and the absence of significant negative impacts on financial stability (Národná banka Slovenska, 2022, point 9).

The preparation phase lasts a maximum of 6 months but can be extended. It allows the participant to carry out consultations with the NBS and to determine the course of testing in the form of a testing plan. Consultations are not a substitute for case law interpretation by courts or for the work of professionally authorized advisers. Upon completion of the consultation, the NBS shall invite the participant to submit a testing plan, which shall be binding on the date on which the participant receives notification that the NBS has approved it.

The actual testing lasts for a maximum of 6 months, with the possibility of extension for a further 6 months upon request. The aim is to implement the financial innovation according to the testing plan.

Upon completion of the testing, the participant shall send a final report to the NBS within 1 month with a summary of the testing process. Within 1 month of receipt of the final report, the NBS shall organize a final meeting to discuss the report or send written comments on the report. Participation in the sandbox will therefore cease either on the date of the final meeting or on the date on which the participant receives the written statement from the NBS.

The Slovak Central Bank publishes reports on the functioning of its innovation hub and regulatory sandbox. The Innovation Hub has been operating in the regulator's environment (NBS) for 6 years (since 2019) and has handled 116 inquiries during this period. The regulatory sandbox has been operating for 3 years, and the number of participants is significantly lower, due to the higher requirements for participation in the sandbox. In 2024, the NBS handled 31 cases in the innovation hub (26 of which were related to crypto-assets, which was related to market preparation for the implementation of MiCAR; the others were from the payment services and securities sectors); the regulatory sandbox in 2024 was in the preparatory phase for a participant, namely a crowdfunding service provider (Crowdberry Investment Platform j.s.a.) as a supervised entity (Národná banka Slovenska, 2025b, p. 5)[10].

These data show that there is a steady interest in communicating with the national regulator (NBS) in the FinTech field. The Innovation Hub serves as a "big funnel" for selecting those interested in entering the regulatory sandbox. The regulatory sandbox therefore represents a higher level of cooperation with the regulator linked to the innovation hub.

5. Conclusion

Both general and specific European legislation (with exceptions for areas such as crypto-assets and crowdfunding) and national FinTech legislation (with the exception of implementation acts) are still absent. Following the regulatory trends in European law (adoption of EU-regulations replacing directives), it can be stated that the position of the national regulator in the normative area is rather one of wait-and-see, i.e. waiting for further specific EU legislation in this area.

[10] For comparison, in 2023 the NBS dealt with 19 cases in the innovation hub, of which 13 were related to crypto-assets, and 2 cases in the regulatory sandbox in the area of crowdfunding (Národná banka Slovenska, 2024, p. 4). In 2022, the innovation hub handled 15 cases and there was 1 case in the regulatory sandbox (Národná banka Slovenska, 2023, p. 4).

Following the adoption of specific EU-regulations for FinTech (e.g. MiCAR), the Slovak legislator has chosen to implement them through the so-called Implementation Act (the MiCAR-Implementation Act), which, although it enshrines national specifics, fully refers to the text of the implemented regulation. It should be noted that such comprehensive regulations do not need any further national legal reception because of their nature as regulatory codes. We confirm the hypothesis of this part of the article.

As mentioned above, the traditional rule-based method of regulating financial services will prevail in Slovakia. As a result of the penetration of elements of European financial services regulation (currently based more on the principle-based method) into Slovak financial market regulation, provisions based on the goals-based method can also be identified in Slovak regulation. Therefore, we conclude that Slovak financial market regulation, although dominated by the rule-based method, applies a hybrid method of regulation.

From the point of view of the choice of regulatory approach to FinTech, some authors characterize the situation in Slovakia as a "wait and see" approach[11]. Apart from that, we are of the opinion that the Slovak Republic is dominated by the experimental approach (or the approach based on innovation intermediaries), as we have identified its main features above – namely, the active role of the NBS in communication with FinTech companies, which led to the creation of the Innovation Hub and the Regulatory Sandbox within the NBS. Although we can state that the Slovak Republic has chosen a non-legislative approach to FinTech issues, the legal basis for the NBS competences in this area is, in our opinion, Act No. 747/2004 Coll. on Financial Market Supervision. Accordingly, the NBS's personal competence in the FinTech area is primarily aimed at the so-called supervised entities, or at entities that will acquire such status pro futuro, or at entities that cooperate with supervised entities in the area of innovation implementation.

The basic difference between the functioning of an innovation hub and a regulatory sandbox is that an innovation hub serves as a short-term and one-off consultation (a contact point for answering specific questions). On the other hand, the role of the regulatory sandbox is to provide recurrent consultations on setting up a financial innovation and testing it in the financial market under the control of the NBS (a process of several months). A narrower range of actors can participate in the regulatory sandbox than in the innovation hub, through which practically anyone may submit an inquiry. The opinion of the NBS provided through the innovation hub or as an output of participation in the regulatory sandbox does not replace the licensing procedure for the issuance of a license

[11] In relation to crowdfunding (Heseková Bojmírová, 2023, p. 167).

to carry out the regulated activity with which the financial technology has been tested. As a FinTech regulator, the NBS principally acts as an innovation facilitator through varying degrees of consultation and testing, depending on whether it is through an innovation hub or a regulatory sandbox, but these activities also benefit the regulator itself. The latter receives information on the state of the FinTech market and its evolution. The NBS is perceived very positively and proactively as a national "innovation facilitator" by the proactive creation of innovation intermediaries (the use of innovation intermediaries is demonstrated by the reports on the activities of the NBS Innovation Hub and Regulatory Sandbox). We consider the experimental approach (based on innovation intermediaries) to be dynamic, flexible, and adaptive, as it creates space for the application of multiple regulatory approaches to FinTech. Subsequently, if necessary, the regulator can resort to the use of a hybrid method with the prevalence of the rule-based method. Therefore, we conclude the verification of the first hypothesis formulated by us in the introduction.

References

[1] Bower, J. L. & Christensen, C. M. (1995, January–February). Disruptive technologies: Catching the wave. *Harvard Business Review*. https://hbr.org/1995/01/disruptive-technologies-catching-the-wave

[2] Bujňák, V., Gaňa, S. & Hodás, M. (2023). Teória a prax právnej normotvorby. Wolters Kluwer SR.

[3] Burt, R. A. (2022). *British battleships of World War One*. Seaforth Publishing.

[4] Constitution of the Slovak Republic, Constitutional Act No. 460/1992 Coll.

[5] Čunderlík Čerbová, V. (2021). Artificial intelligence, ethics, and the Catholic Church. In Florek, I. & Laki, I. (Eds.), *Human rights: From reality to the virtual world* (pp. 27–28). Alcide De Gasperi University of Euroregional Economy in Józefów. https://doi.org/10.13166/WSGE//MTKO9151

[6] Čunderlík, Ľ. & Čunderlík Čerbová, V. (2019). Tradičné modely správy majetku a vymedzenie inovatívnych a atypických modelov jeho správy. In Čunderlík, Ľ. et al., Inovatívne a atypické modely správy majetku na finančnom trhu a súvisiace otázky (pp. 17–31). Leges. https://www.flaw.uniba.sk/fileadmin/praf/Pracoviska/Katedry/KFP/Prednasky/Inovativne_a_atypicke_modely_spravy_majetku_Final.pdf

[7] Čunderlík, Ľ. (2017). Právna úprava finančného trhu – právo finančného trhu. In Čunderlík, Ľ. et al., *Právo finančného trhu*. Wolters Kluwer.

[8] Čunderlík, Ľ. (2024). Komentár k § 94. In Vojtko, M., Guniš, S. & Vlášek, P. et al., *Zákon o bankách. Komentár* (1st ed., p. 1505). C. H. Beck.

[9] European Supervisory Authorities (ESAs). (2018). *FinTech: Regulatory sandboxes and innovation hubs*. https://www.esma.europa.eu/sites/default/files/library/jc_2018_74_joint_report_on_regulatory_sandboxes_and_innovation_hubs.pdf

[10] Fábry, B., Kasinec, R. & Turčan, M. (2019). *Teória práva* (2nd ed.). Wolters Kluwer SR.

[11] Ford, C. (2021). A regulatory roadmap for financial innovation. In Chiu, I. H.-Y. & Deipenbrock, G. (Eds.), *Routledge handbook of financial technology and law* (pp. 62–77). Routledge.

[12] Gerloch, A. (2021). *Teorie práva* (8th ed.). Aleš Čeněk.

[13] Heseková Bojmírová, S. (2023). *Poskytovanie pôžičiek peer to peer spôsobom v kontexte legislatívy upravujúcej poskytovanie úverov spotrebiteľom*. Wolters Kluwer SR.

[14] Hodás, M. (2022). *Implementácia autonómnej mobility – niektoré filozofické a (ústavno)právne aspekty a ich právne a metaprávne implikácie nielen pre Slovenskú republiku*. Leges.

[15] Hynek, V. & Klučina, P. (1986). *Válečné lodě (2)*. Naše vojsko.

[16] Jongmoo J., Ch. & Ozkan, B. (2019). Innovation and disruption: Industry practice and conceptual bases. In Jongmoo J., Ch. & Ozkan, B. (Eds.), *Disruptive innovation in business and finance in the digital world* (*International Financial Review*, Vol. 20, p. 4). Emerald Publishing Limited. https://doi.org/10.1108/S1569-376720190000020003

[17] Karfíková, M. et al. (2018). *Teorie finančního práva a finanční vědy*. Wolters Kluwer ČR.

[18] Mazúr, J. (2017). *Regulácia založená na pravidlách a regulácia založená na princípoch*. In Čunderlík, Ľ. et al., Právo finančného trhu. Wolters Kluwer.

[19] Mesarčík, M., Gyurász, Z. et al. (2024). *Právo a umelá inteligencia*. Právnická fakulta Univerzity Komenského v Bratislave. https://www.flaw.uniba.sk/fileadmin/praf/Pracoviska/Ustavy/UPITPDV/E-KNIHY/Pravo_a_umela_inteligencia_ucebnica_01.pdf

[20] Ministerstvo financií Slovenskej republiky. (2025). *Centrum pre finančné inovácie*. https://www.mfsr.sk/sk/financie/financny-trh/financne-inovacie/centrum-financne-inovacie/

[21] Mrkývka, P. (2012). *Determinace a diverzifikace finančního práva*. Masarykova univerzita.

[22] Nagy, Z. (2022). The theoretical foundations of regulation on public finances. In Nagy, Z. (Ed.), *Regulation of public finances in light of financial constitutionality: Analysis on certain Central and Eastern European countries* (pp. 13-33). Central European Academic Publishing. https://doi.org/10.54171/2022.zn.ropfatilofc_2

[23] Národná banka Slovenska. (2020, September). *Evaluation of the regulatory sandbox consultation*. https://nbs.sk/_img/documents/_dohlad/fintech/regulacny-sandbox-vyhodnotenie.pdf

[24] Národná banka Slovenska. (2022). *Regulatory Sandbox Operating Rules*. https://nbs.sk/dohlad-nad-financnym-trhom/fintech/regulacny-sandbox/

[25] Národná banka Slovenska. (2023). *Report on the activities of the Innovation Hub and the Regulatory Sandbox of the National Bank of Slovakia 2022*. https://nbs.sk/dokument/d7e89f9b-bf63-4b80-857c-8b17614ba652/stiahnut?force=false

[26] Národná banka Slovenska. (2024). *Report on the activities of the Innovation Hub and Regulatory Sandbox of the National Bank of Slovakia 2023*. https://nbs.sk/dokument/98c88197-638c-409e-ae13-55c403ba1b2a/stiahnut?force=false

[27] Národná banka Slovenska. (2025a). *Fintech*. https://nbs.sk/dohlad-nad-financnym-trhom/fintech/

[28] Národná banka Slovenska. (2025b). *Innovation Hub and Regulatory Sandbox Report 2024*. https://nbs.sk/dokument/98386e31-7c8e-45f5-aa2d-d5601a22518f/stiahnut?force=false

[29] Omarova, S. T. (2021). Fintech and the limits of financial regulation: A systematic perspective. In Chiu, I. H.-Y. & Deipenbrock, G. (Eds.), *Routledge handbook of financial technology and law* (pp. 44–61). Routledge.

[30] Regulation (EU) 2020/1503 of the European Parliament and of the Council of 7 October 2020 on European crowdfunding service providers for business, and amending Regulation (EU) 2017/1129 and Directive (EU) 2019/1937 (ECSP).

[31] Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector and amending Regulations (EC) No 1060/2009, (EU) No 648/2012, (EU) No 600/2014, (EU) No 909/2014 and (EU) 2016/1011 (DORA).

[32] Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 (MiCA).

[33] Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the

European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC (MAR).

[34] Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories (EMIR).

[35] Sejkora, T. (2023). *Moderní nástroje aktivní politiky finančních inovací a jejich místo v právním rámci finančních služeb v Evropské unii: Explorační studie ze států Visegradské skupiny a Pobaltí*. Wolters Kluwer ČR.

[36] Štrkolec, M. (2022). Dohľad nad finančným trhom. In Babčák, V. et al., *Základy slovenského finančného práva* (p. 410). EPOS.

[37] Toman, M. (2022). Vývoj RegTech a možnosti aplikácie umelej inteligencie. In Suchoža, J., Husár, J. & Hučková, R. (Eds.), *Právo, obchod, ekonomika* (p. 266). Univerzita P. J. Šafárika v Košiciach.