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State Regulatory Policy for the Development of the Payment Segment Fintech Sector

Abstract. Introduction. *The article examines the theoretical and applied aspects of state regulatory policy for developing the payment segment of the fintech sector in the context of the digital transformation of the economy. It reveals the role of state regulation in forming an effective institutional environment for payment systems, financial technology development, and ensuring the stability of the national payment market.*

Purpose. *The article aims to provide a theoretical justification and practical assessment of state regulatory policies for developing the payment segment of the fintech sector in the context of economic digitalization. It seeks to identify institutional and technological factors of its transformation and develop strategies to improve the regulatory environment, stimulate innovation, increase financial market competitiveness, and ensure the effective functioning of payment infrastructure.*

Results. *The current state of development of the payment segment in Ukraine and around the world is analyzed, and the main trends in the adoption of non-cash payments, digital payment services, and financial innovations are identified. The study establishes that the transformation of the payment segment is accompanied by a strengthening of the role of state regulators in standardizing digital financial services, protecting consumer rights, ensuring cybersecurity, and combating financial fraud. The effectiveness of state regulatory policy directly affects the speed of financial innovation implementation, the competitiveness of fintech companies, and the resilience of payment infrastructure to internal and external risks. The impact of state regulatory policy on developing a competitive environment in the fintech sector, implementing open banking, digital user identification, instant payment systems, and innovative payment instruments is substantiated.*

Conclusions. *Harmonizing national legislation with European regulatory requirements increases the efficiency of the payment infrastructure, expands financial inclusion, and strengthens trust in digital financial services. Key technological factors for developing the payment segment are identified, including artificial intelligence, cloud computing, blockchain technologies, biometric authentication, and open software interfaces. Priority areas for improving state regulatory policy are proposed, including developing open banking, supporting innovative financial ecosystems, introducing digital central bank currencies, improving cyber protection mechanisms, and adapting the Ukrainian payment market to European Union standards.*

Keywords: *government regulatory policy, financial technologies, Fintech sector, payment segment, digitalization, financial inclusion, cybersecurity.*

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Анотація. *У статті досліджено теоретичні та прикладні аспекти державної регуляторної політики розвитку платіжного сегменту фінтех-сектору в умовах цифрової трансформації економіки. Розкрито роль державного регулювання у формуванні ефективного інституційного середовища функціонування платіжних систем, розвитку фінансових технологій та забезпеченні стабільності національного платіжного ринку. Проаналізовано сучасний стан розвитку платіжного сегменту в Україні та світі, визначено основні тенденції поширення цифрових платіжних сервісів і фінансових інновацій. Встановлено, що трансформація платіжного сегменту супроводжується посиленням ролі державних регуляторів у сфері стандартизації цифрових фінансових послуг, захисту прав споживачів, забезпечення кібербезпеки та протидії фінансовому шахрайству. Доведено, що ефективність державної регуляторної політики безпосередньо впливає на швидкість впровадження фінансових інновацій, рівень*

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конкурентоспроможності фінтех-компаній та стійкість платіжної інфраструктури до зовнішніх і внутрішніх ризиків. Обґрунтовано вплив регуляторної політики держави на розвиток конкурентного середовища у фінтех-секторі, впровадження відкритого банкінгу, цифрової ідентифікації користувачів, систем миттєвих платежів та інноваційних платіжних інструментів. Встановлено, що гармонізація національного законодавства з європейськими регуляторними вимогами сприяє підвищенню ефективності функціонування платіжної інфраструктури, розширенню фінансової інклюзії населення та зміцненню довіри до цифрових фінансових сервісів. Визначено ключові технологічні чинники розвитку платіжного сегменту фінтех-сектору, серед яких штучний інтелект, хмарні обчислення, блокчейн-технології, біометрична автентифікація та відкриті програмні інтерфейси. Запропоновано пріоритетні напрями вдосконалення державної регуляторної політики, які передбачають розвиток і підтримку інноваційних фінансових екосистем, впровадження цифрових валют центральних банків, удосконалення механізмів кіберзахисту та адаптацію платіжного ринку України до стандартів Європейського Союзу.

***Ключові слова**: державна регуляторна політика; фінансові технології; фінтех-сектор; платіжний сегмент; цифровізація; фінансова інклюзія; кібербезпека.*

Formulation of the problem. The current stage of the world economy is characterized by the active introduction of new models of Fintech functioning into all spheres of public life. One of the most dynamic areas of these transformations is the development of the payment segment of financial technologies. Over the past decade, this segment has undergone significant structural changes due to digitalization, the globalization of financial markets, and the increased demand for fast, secure, and accessible financial services via electronic payment platforms, digital wallets, open banking technologies, and artificial intelligence. These changes have led to new financial transaction mechanisms that are gradually replacing traditional payment instruments. Consequently, the payment segment in the fintech sector is becoming a driving force in the development of the digital economy, ensuring the efficiency of financial flows and enhancing financial accessibility for individuals and businesses.

In the context of state regulatory policy, this issue is particularly relevant. Under the influence of European integration processes, the modernization of payment infrastructure, and the implementation of international financial service regulatory standards, the concept of open banking is being developed. This allows for the spread of digital state administration services and the implementation of central bank digital currency projects, creating new opportunities to increase payment market efficiency. However, technological changes also present new challenges related to cybersecurity, personal data protection, ensuring competition in the financial services market, and adapting regulatory mechanisms to modern conditions in the digital environment. In this regard, studying the state regulatory policy for developing the payment segment of the fintech sector acquires important theoretical and practical significance.

Analysis of recent research and publications. Many foreign and domestic scientists are focusing on the state regulation of the development of the payment segment of the fintech sector. Scientific research covers issues such as forming a regulatory environment for payment systems, adapting the financial sector to digital transformation, developing open banking, improving state supervision mechanisms for financial technologies, ensuring cybersecurity, and protecting users' personal data. Particular attention is paid to harmonizing national legislation with European standards for regulating payment services, creating conditions for developing innovative payment services, increasing financial inclusion, and ensuring the stability of digital payment infrastructure. M. Dubyna, O. Popelo, and O. Tarasenko [1] studied the institutional aspects of the digital transformation of Ukraine's financial system. Scientists have developed approaches to assessing institutional changes that occur under the influence of the digital economy and financial technologies. T. Gorokhov's work [7] is devoted to studying business process transformation in a digital environment and substantiates the mechanisms of digitalizing management and financial processes of enterprises.

S. Shirinova [16] studied the features of the digital transformation of banking business processes, identifying the directions of financial transaction automation and the role of digital platforms in increasing the efficiency of banking services. E. Ovsyannikova and E. Chulova [15] studied the problems of the banking system's transformation. The scientists substantiated the impact of digitalization on structural changes in banking activities and the development of electronic payment services. I. Tsindeli-ani, M. Proshunin, T. Sadovska, and Zh. Popkova, M. Davydova, and O. Babayan [17]. The scientists developed approaches to integrate digital technologies into the system of sustainable financial development and increase the transparency of banking activities.

N. Morozko and V. Didenko [10] revealed the role of financial technologies in the transformation of corporate interactions and proved that fintech solutions contribute to the increased efficiency of financial communications between business entities. L. Vardomatska, V. Kuznetsova, and V. Plotnikov [18] researched the transformation of financial technologies in the digital economy and identified key areas of development of digital payment systems and innovative financial services.

The systematization of scientific research on the development of the fintech sector was carried out by M. Barroso and J. Laborda [2], who identified the main trends of the digital transformation of financial services and areas of further re-search of fintech ecosystems. Le Th. studied the impact of digitalization on the financialization of European economies. Ha [6], who proved the direct connection between digitalization levels and financial market and digital payment instrument development. Modern scientists pay special attention to cybersecurity issues in financial technologies. For example, D. Javaheri et al. [8] conducted a systematic review of cyber threats in fintech, classified the main risks of digital payment systems, and proposed mechanisms for minimizing them.

S. Nosova [13] proposed a new paradigm of state policy in the context of digital transformation, substantiating the need to adapt digitalization processes in the financial sector to state regulation. P. Gomber, J. Koch, and M. Ziering [5] conducted a comprehensive study devoted to the conceptual foundations of the Fintech sector's development. This sector is a catalyst for structural changes in the payment infrastructure of the banking market. I. Lee and Y. J. Shin [9] made a significant contribution to the study of Fintech ecosystems. The scientists developed a concept for how Fintech ecosystems function, characterized the main business models of Fintech companies, investigated investment mechanisms in financial technologies, and identified the main challenges of the financial sector's digital transformation. K. Gai, M. Qiu, and H. Song [4] presented a comprehensive analysis of the development of financial technologies. They studied the architecture of Fintech systems, classified the main technological solutions, and identified the prospects for using digital platforms in payments, lending, and financial management.

Thus, the analysis of scientific works indicates significant researcher interest in the digital transformation of the payment segment in the financial market. At the same time, issues regarding the formation of a modern model of state regulation of the payment segment remain insufficiently studied. This model should be based on a combination of the principles of technological neutrality, risk-oriented supervision, and support for innovation. It will contribute to the increased efficiency of the Fintech sector and its integration into the European financial space. This underscores the importance of further scientific research in this area.

Formulation of research goals. The purpose of this article is threefold: first, to provide a theoretical justification and practical assessment of state regulatory policy for developing the payment segment of the fintech sector in the context of economic digitization; second, to identify the institutional and technological factors of its transformation; and third, to develop directions for improving the regulatory environment to stimulate innovation, increase financial market competitiveness, and ensure the effective functioning of payment infrastructure.

Presentation of the main research material. The development of the payment segment of the fintech sector is a natural result of the digital transformation of the financial system. It is also a consequence of improved state regulatory policy aimed at forming a modern payment infrastructure. Financial technologies are one of the key factors of structural changes in the financial services market. They ensure the emergence of new payment instruments, digital channels of interaction between market participants, and innovative business models. In this context, the state's role in establishing a favorable regulatory environment that balances innovation and financial stability is paramount.

The payment segment of the fintech sector encompasses digital solutions and technologies that carry out financial transactions in real time using electronic communication channels. This includes remote banking systems, mobile payments, electronic money, digital wallets, QR payments, instant payment systems, open banking services, and solutions based on artificial intelligence and blockchain technology. The development of these tools largely depends on the effectiveness of state regulation, which determines market access conditions for new participants, consumer financial services rights protection rules, and cybersecurity requirements.

The transformation of the payment segment is happening globally due to the digitalization of the economy, the growth of e-commerce, and the spread of remote service provision. At the same time, state regulators are actively adapting the regulatory framework to new digital challenges, creating conditions for financial innovation and ensuring competitive payment market functioning. In European Union countries, an important factor in the development of the payment segment was the implementation of the PSD2 Directive, which established the legal foundations of open banking and expanded the possibilities for integrating financial services.

A key aspect of state regulatory policy is establishing institutional conditions for open banking development. Providing financial institutions and licensed providers with access to payment infrastructure through standardized software interfaces increases competition, expands the range of financial services, and creates new digital products. However, open banking necessitates greater regulatory oversight to protect users' personal data and ensure information security.

The NBU's activities as a payment market regulator are particularly important for Ukraine. Implementing a policy to develop a cashless economy, modernizing the payment infrastructure, introducing international regulatory standards, and harmonizing legislation with European Union norms create the prerequisites for accelerating the development of the fintech sector. An important step in this direction was the adoption of the Ukrainian Law "On Payment Services," which significantly expanded the circle of participants in the payment market, created a legal framework for open banking, and strengthened competition in the payment services sector.

Table 1 shows the institutional and technological factors of the development of the payment segment of the Fintech sector.

Table 1 **Institutional and technological factors of the development of the payment segment of the Fintech sector**

Group of factors	Factor	Nature of impact on the payment segment
Institutional	State Regulatory Policy	Formation of legal conditions for the functioning of the payment market and the development of financial innovations
	Payment Services Legislation	Expanding the circle of market participants and stimulating competition
	NBU Policy	Development of a cashless economy and modernization of the payment infrastructure
	Open Banking	Integration of banking and non-banking financial services
	Consumer Protection	Increasing trust in digital payment instruments
	Cybersecurity Regulation	Minimizing digital risks and financial fraud
Technological	Artificial Intelligence	Payment automation and financial transaction monitoring
	Big Data	Customer behavior analysis and service personalization
	Cloud Technologies	Increasing scalability and transaction processing speed
	Blockchain	Increasing transparency and security of financial transactions
	Biometric Authentication	Strengthening access protection to payment services
	NFC and QR Payments	Simplifying and accelerating settlement processes
	API Technologies	Implementing the concept of open banking
	Instant Payment Systems	Making payments 24/7

Source: developed by the author

As shown in Table 1, the development of the payment segment of the fintech sector is determined by the complex interaction of institutional and technological factors. Institutional factors establish the regulatory environment in which the payment market operates, determine the level of competition, and set the conditions for new participants to access the payment infrastructure. They also establish mechanisms that protect the rights of consumers of financial services. Technological factors, meanwhile, ensure the digital modernization of payment processes, increasing the speed of financial transactions, the level of cybersecurity, and the availability of financial services. Artificial intelligence, open banking, cloud computing, and instant payment systems are the most important technologies for the digital transformation of the financial sector in modern conditions.

After analyzing the institutional and technological factors that influence the development of the payment segment, it is advisable to examine in more detail the mechanisms of state regulatory influence on the activities of Fintech sector participants. In the context of the rapid spread of digital financial services, traditional approaches to financial market regulation are gradually transforming into flexible supervision models that support innovation while ensuring financial system stability. In this regard, state regulatory policy must consider not only the needs of payment infrastructure development, but also the need to minimize risks associated with the digitalization of financial services.

One of the key areas of state regulation is creating a favorable regulatory environment for Fintech companies. Unlike traditional banking institutions, Fintech companies' activities are characterized by a high level of technological dynamism, requiring constant updates to regulatory approaches. This is why many countries around the world are implementing regulatory sandboxes, which allow for the testing of innovative financial products and payment solutions in a controlled environment without creating excessive risks for the financial market.

An important tool of state regulatory policy is ensuring equal access to payment infrastructure for market participants. Forming a competitive environment improves the quality of financial services, reduces the cost of payment transactions, and stimulates the adoption of innovative technologies. In this context, open banking is particularly important because it creates conditions for integrating banking and non-banking financial institutions into a single digital ecosystem. Thanks to open software interfaces, financial institutions can develop payment services tailored to customers' individual needs.

An important area of state regulation is ensuring the cybersecurity of the payment segment. As the volume of electronic financial transactions grows, so does the number of cyberattacks, fraudulent schemes, and attempts to access users' financial data without authorization. In response, state regulators are tightening requirements for information security management systems, user authentication procedures, personal data protection, and continuity of payment services. The use of multi-factor authentication, biometric technologies, and real-time monitoring systems for suspicious financial transactions is particularly important.

State policy to stimulate non-cash payments also plays a separate role in the development of the payment segment. Worldwide experience shows that expanding the use of electronic payment instruments increases the transparency of financial flows, reduces the size of the shadow economy, and improves the efficiency of tax administration. This is why most countries are implementing programs to digitize financial services, which aim to expand access to modern payment services for the population and businesses.

In modern circumstances, ensuring the financial inclusion of the population is an important direction of state regulatory policy. Digital payment services provide opportunities to attract broad segments of the population who previously had limited access to banking services to the financial system. Thanks to mobile applications, digital wallets, and remote identification, people have significantly more opportunities to obtain financial services, regardless of their place of residence.

In Ukraine, developing the payment segment has become particularly relevant in the context of martial law. Despite the significant challenges associated with military risks, the financial system has demonstrated a high level of stability and adaptability. The continuous functioning of electronic payments, the development of digital services by the National Bank of Ukraine (NBU) and commercial banks, and the active use of mobile payment applications have ensured the stability of financial transactions and supported economic activity among the population and businesses.

State regulatory policy development in the field of financial technologies aims to deepen the national payment market's integration into the European financial space. This policy seeks to improve open banking regulation mechanisms, develop instant payment systems, introduce innovative artificial intelligence technologies, and create legal prerequisites for central bank digital currencies. Implementing these policies will increase the efficiency of the payment segment, strengthen the competitiveness of the fintech sector, and ensure the sustainable development of the financial system amid the digital transformation of the economy.

An important feature of the modern development of the payment segment is the significant increase in the number of fintech companies. The Fintech sector acts as a source of innovations that ensure the creation of new financial products, the improvement of payment mechanisms, and the formation of a competitive environment in the financial services market (Figure 1).

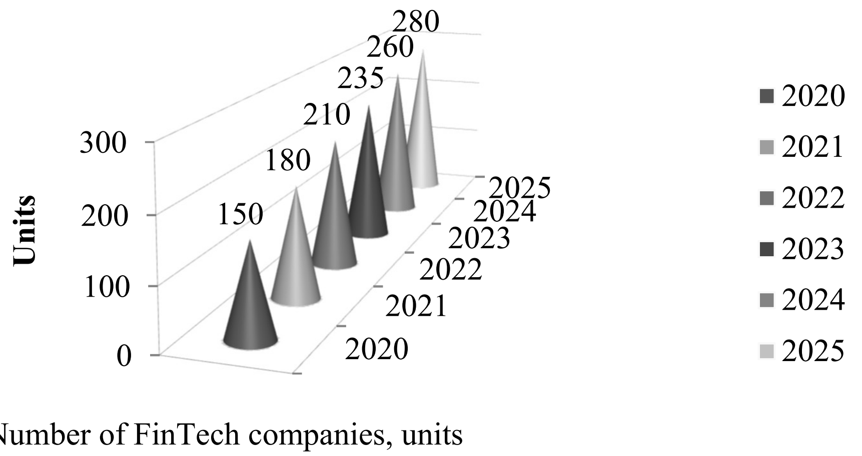

Figure 1 – **Dynamics of development of FinTech companies in Ukraine for 2020-2025**

Source: built based on data [3; 14; 19; 7]

The data in Figure 1 show that the number of fintech companies in Ukraine has more than tripled during the study period. While there were approximately 150 companies operating on the market in 2020, this number could reach 280 by 2025. These dynamics indicate a high level of innovative activity and significant potential for the development of the Fintech sector. At the same time, expansion of the Fintech sector increases competition in the financial market, stimulates the digital transformation of banking institutions, and creates new opportunities for developing digital payment services.

Mobile banking significantly impacts the development of the payment segment in the Fintech sector and is becoming one of the channels of interaction between financial institutions and clients (Figure 2).

An analysis of indicators shows that the number of mobile banking users increased nearly fourfold during the period from 2020 to 2025. This confirms that mobile applications have become the primary tool for accessing financial services. The growth in demand for digital services is associated with both technological progress and changing customer expectations. Customers now seek quick, safe, and remote access to financial services.

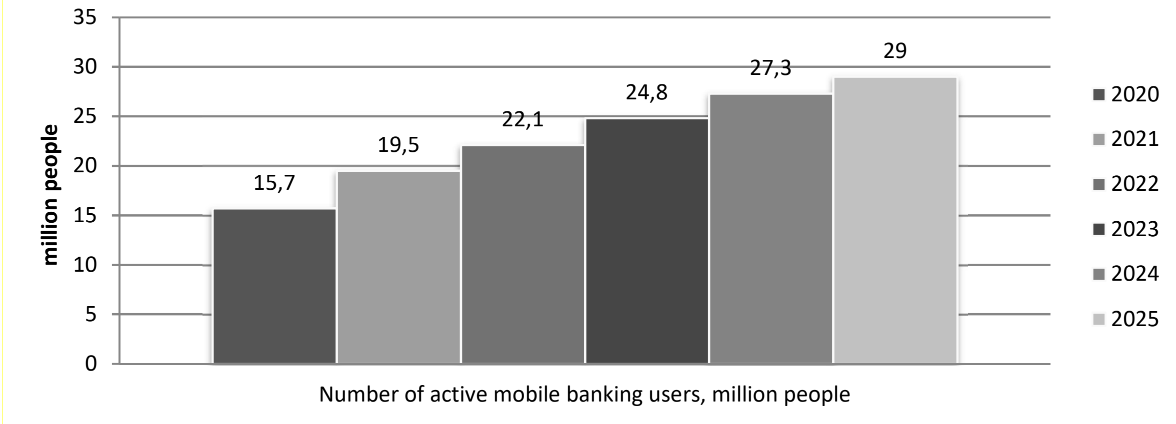

Figure 2 – **Use of mobile banking in Ukraine for 2020-2025, million people**
Source: built based on data [11; 12]

The adoption of open banking principles fosters a competitive environment in the financial services market, creating opportunities for innovative business models. Transferring financial data through standardized software interfaces integrates banking and non-banking services, improves customer service, and stimulates the development of digital financial products. Consequently, consumers receive wider access to financial services, while financial institutions gain new opportunities to expand sales markets and increase competitiveness.

In the context of the digitalization of the financial sector, regulatory policy should ensure a balance between stimulating technological innovation, maintaining financial stability, protecting consumer rights, and minimizing cyber risks. This is particularly important for Ukraine as it integrates into the European financial space and implements EU standards in payment services. Considering current trends in financial technology development and digital economy requirements, we propose a system of priority areas to improve the regulatory environment for developing the payment segment of the fintech sector (Table 2).

Table 2 **Areas for improving the regulatory environment for the development of the payment segment of the Fintech sector**

Direction of improvement	Content of regulatory measures	Expected result	Level of impact*
Harmonization of legislation with EU norms	Implementation of PSD2, PSD3, Digital Finance Package and Open Finance Framework	Integration into the European Payments Area	9.8
Development of open banking	Standardization of API, ensuring the exchange of financial data between market participants	Increasing competition and developing innovative services	9.7
Implementation of regulatory sandboxes	Creation of a testing environment for innovative financial products	Accelerating the market entry of Fintech products	9.5
Development of instant payment systems	Improvement of 24/7 payment infrastructure	Reducing transaction costs and increasing the speed of settlements	9.4
Strengthening cybersecurity	Implementation of NIS2, DORA standards, strengthening data protection	Reducing the level of cyber threats and financial fraud	9.9
Development of digital identification	Expanding the use of BankID, eID and digital documents	Simplifying access to financial services	8.9
Regulation of artificial intelligence technologies	Establishing requirements for the use of AI in financial services	Improving the quality of financial products and automating processes	8.8
Promoting digital financial inclusion	Supporting the accessibility of digital payment services for the population	Expanding the client base of financial institutions	8.6
Regulation of central bank digital currencies (CBDCs)	Formation of legal frameworks for the use of the NBU digital currency Integration of sustainable development principles into financial technologies	Developing innovative payment infrastructure	8.7
Development of ESG regulation of the Fintech sector	Integration of sustainable development principles into financial technologies	Increasing the investment attractiveness of the sector	8.2

Note: *0-10 points, where 10 is the maximum impact on the development of the payment segment of the Fintech sector.
Source: developed by the author

The data in Table 2 show that ensuring cybersecurity (9.9 points), harmonizing legislation with European requirements (9.8 points), and developing open banking (9.7 points) will have the greatest impact on the further development of the payment segment. These areas form the institutional basis for modern payment infrastructure and attract investments in financial technologies. Meanwhile, developing regulatory sandboxes, instant payment systems, and digital identification will increase Fintech companies' innovative activity and expand user access to digital financial services.

The proposed approach enables the development of a comprehensive model for improving state regulatory policy by combining institutional, technological, and security tools for payment segment development. Implementing these areas will increase the competitiveness of the national financial market, accelerate the digital transformation of financial services, expand the possibilities of open banking, and ensure the payment infrastructure functions effectively in accordance with European regulatory standards.

Conclusions. Thus, the development of the payment segment of the fintech sector is influenced by institutional, technological, and regulatory factors that determine the digital transformation of the financial market. The current stage of payment service development is characterized by the implementation of open banking technologies, artificial intelligence, cloud computing, biometric authentication, and instant payment systems. The effectiveness of payment infrastructure largely depends on the quality of state regulation and the regulatory authorities' ability to adapt to modern technological changes, ensure an appropriate level of cybersecurity, and create conditions for fair competition among financial market participants. It has been determined that an important direction of state policy is to harmonize national legislation with European standards for regulating payment services, which will contribute to Ukraine's further integration into the European Union's single digital financial space.

The following priority areas are proposed to improve the regulatory environment for the development of the payment segment of the fintech sector: the development of open banking; the introduction of regulatory sandboxes; the strengthening of cyber security of payment infrastructure; the improvement of digital identification mechanisms; the development of instant payment systems; and the formation of a regulatory framework for the use of central bank digital currencies. Implementing these measures will increase Fintech companies' innovative activity, expand the availability of financial services, strengthen the financial market's competitiveness, and ensure the sustainable functioning of the payment infrastructure in the digital economy. Further research should focus on developing models to assess the effectiveness of state regulatory policy in the field of financial technologies and determine the impact of digital financial innovations on the financial stability and economic growth of the country.

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