

# Risks of the Neobanks' Activities in the Conditions of the Economy Digitalization

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**Abstract:** - The operation of neobanks, as a new banking concept, is currently gaining great popularity. However, their activities are associated with specific risks that are not characteristic of classic banks. The inefficient risk management can harm not only the banks themselves but also customers as well as the entire banking system. The article aims to identify opportunities and threats in the resistance of neo-banks to risks against the background of companies' digitalization. The current study applied graphic, analytical research methods (determination of specific weight and structure fractions), parameterization methods using the matrix approach and linear functional dependence, and the method of strategic SWOT analysis. The application of advanced digital technologies enables neobanks to enhance their flexibility and ability to quickly adapt to changes in the market. The utilization of artificial intelligence allows neobanks to supply their customers with personalized solutions and services, which can increase customer loyalty and satisfaction. However, neobanks face specific risks that can negatively affect their activities and entail grave problems both for the bank itself and for its customers. The growing use of digital technologies increases the risk of cyber-attacks and unauthorized access to customer financial data. Given the above, neobanks should pay due attention to cyber security and ensure the highest protection of their customers' data. Operation shortcomings, technical issues, and work breakdowns also present a considerable risk, as they can negatively affect the customer's trust and lead to the loss of business partners and reputation. Therefore, the success of neobanks depends on the ability to effectively manage these specific risks and ensure a high level of security for their financial services. The scientific novelty of the obtained results lies in the proposed parametric model for estimating the integrated neobanks' risks drawing on the specified component risks. The research findings can be applied to elaborating a framework of project documents for promoting the development of neobanking while designing the neobanks' risk management policy based on the proposed parametric risk estimation approach. The conducted study is promising in terms of opening up perspectives for future research, in particular as regards the effectiveness of neobanks' risk management given the digitalization in the economic sphere.

**Key-Words:** - digitalization, neobanking, cyber security, cyber threat, fintech banks, artificial intelligence.

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## 1 Introduction

For several decades, banking institutions have been the principal intermediaries for customers to access a variety of financial products and services.

However, to date, the stability of this mediating function is gradually decreasing, and the role of traditional banks is being transformed considerably, [1]. During the period of pandemic restrictions of

the coronavirus, [2], banking activity experienced a particularly transformative impact, when personal contact between bank employees and customers was entirely prohibited. Apparently, alongside digitalization, this became another driver which prompted the emergence of banks of a new format — namely, neobanks, [3]. Being full participants in the financial market, neobanks are fintech companies that operate under their banking license or function based on the license of an existing bank. Such banks focus exclusively on the digital format and do not have traditional brick-and-mortar branches. They cut down on costs, which has a positive effect on providing more favorable service fees, and favorable interest rates and ensuring numerous benefits to their customers.

Neobanks are banks that operate based on an online platform, utilizing modern digital technologies, and accordingly do not have physical divisions or branches. Neobanks emerged after the 2008 crisis when there was a pressing necessity to optimize the costs of traditional banking business. The functioning of neobanks as a modern alternative to traditional banks is linked to the development of digitalization, [4]. The rapid development of the digital client environment is observed in several areas across the economy. Consequently, the need to ensure the ability to make calculations or pay payments without the need to visit bank branches has become a prerequisite for the further development of commodity-monetary relations. Neobanks offer virtually all banking services without any need to visit a banking institution. Nevertheless, such advantages and ease of use in terms of financial services may incur certain risks that are inherent in any product in the digital environment, [5]. Moreover, there may be specific risks that are pertinent to neobanks, such as fintech companies in which clients can not exert any influence. In this connection, a contradiction arises between the convenience and safety of the neobanks' services as full participants in the financial market. The prospects for the functioning and development of neo banking as a type of business and field of activity depend on how this contradiction will be addressed, both directly by the neobanks themselves and by the overall digital infrastructure. Drawing on the above, the purpose of the study is to identify opportunities and threats in the neobanks resilience in terms of risks in the conditions of economies' digitalization. In accordance with the set goal, the research addresses the tasks as follows:

- To examine the dynamics of the development in the neobanking market on the background of digitalization processes in the economy;

- To determine the impact of digitalization on the activities of neobanks and the risks of their activities;
- To identify the strengths and weaknesses, as well as opportunities and threats for neobanks, related to the impact of digitalization.

## 2 Literature Review

When viewed as financial market participants, neobanks are relatively new entities. Their emergence is associated with the impact of two large groups of factors. The first group is represented by the development of digital technologies and the digital business environment. Consequently, the banking services transition to the digital environment is a result of trade digitalization, in particular international trade, [4]. But this factor was not explicitly crucial in the emergence of neobanks, since traditional banks while developing customer service systems, began to offer some services remotely, which made them much more convenient for customers. Another group of factors is related to the business model of the neobank's operation, [6], [7]. The said model is based on the complete absence of physical branches, and the entire work with clients takes place remotely, exclusively through digital services. The emergence of a new business model is crucial in the emergence of a new bank format, namely neobanks.

Neobanks is focusing on improving many of its external customer-facing operations with digital solutions. At the same time, a lot of processes in traditional banks are still largely performed directly by people in a manual mode to process customer inquiries, [8]. This high degree of manual processing is expensive, and time-consuming and can lead to inconsistent results and high error rates. These inefficiencies consequently have an essential impact on the customer experience, which neobanks lack to a large degree.

In an analytical study, [9], it is noted that such a feature of the business model can ensure high profitability of neobanks in the future. However, for that end, it is indispensable to have certain prerequisites, among which, in particular, there is effective risk management in place. Among the major risks are as follows: the risk of fraud, reliability of data storage, and cyber threats.

According to, [10], the risks of neobanking are directly related to the essence and specificity thereof. Neobanks is a financial technology company that operates digitally online or via a mobile application. It is the digital environment in which Neobank operates that creates the major risks.

At the same time, the results of a technological transformation study of the banking sector in 90 countries, [11], demonstrate that neobanking reduces the risks of Internet fraud in low-risk countries by 37%, and in low- and medium-risk countries - by 25%. The digital environment as essentially the environment of neobanks, is not seen by all researchers as an unequivocal reason for the neobanking riskiness. If we compare the risks of fraud, then even the percentage of risk inherent in neo-banks can be much lower than the percentage of riskiness of traditional banks. From this point of standpoint, neobanks appear to be much more attractive to customers.

The characteristic feature of neobanks is that they can offer customers personalized banking services, [12], which makes them much more appealing to customers as compared to traditional banks. The strategy of neobanks in interaction with clients involves the creation of a banking product that is as easy to use, convenient, and transparent as possible. It is the convenience and ease of use that is the key to the success of neobanks as compared to traditional banks in their fight for customers. However, as noted in yet another study, [5], this ease of use may be perceived by the customer as a considerable risk. From their subjective standpoint, the client may associate the simplicity of using the application with its lack of protection against fraudulent actions. Therefore, according to the researchers, access to the data contained in the application must be reliably protected so that primarily the clients themselves feel the reliability and safety of using such a service. Given the above, it can be assumed that neo-banks pose a significant threat to traditional banks due to their convenience for customers. Indeed, neobanking increases competition in the field, however, as noted, [3], traditional banks should not consider neobanks as a threat. Through cooperation with non-banks, they can receive numerous advantages, but the introduction of digitalization in traditional banks is also important in this process. In, [13], the authors reach similar conclusions, noting from a survey that most respondents recognize some regulatory compliance issues in neobanks compared to traditional banks. At the same time, these problems are offset by significant advantages for clients due to the high convenience of services provided by non-banks.

The findings of a study examining cyber risks for neobanks, [14], are worthy of note. The results of this study indicate that cyber risks for neobanks are correlated with the level of risk for the country's economy as a whole. Thus, for groups of countries

in which cyber risks are high, they remain high for neobanks as well. Notably, in those groups of countries where the level of cyber risk is quite low, it is also low for neobanks. Given this, we can conclude that neobanks do not produce new risks or increase existing ones. This can be explained by the fact that in countries where the level of digital security is at a high level, it is equally high in all areas of the economy, and conversely: as due to neobanking is not based on any unique technologies or those used exclusively by neobanks.

The analysis of literary sources showed that the risks of neobanks are not unambiguous and call for a thorough study. The researched papers do not contain an unambiguous approach to the types of risks specific to neobanks, moreover, the vast majority of studies generalize risks at the level of the banking system or the level of risks specific to the economy of a specific country.

### 3 Methods

The research was carried out in three stages. The first stage involved an analysis in terms of the dynamics of the neobanks development worldwide. At this stage, we examined the following indicators:

- the volume of transactions carried out by neobanks;
- the number of biobank clients;
- the key participants in the market of neobanks.

In the second stage, the impact of economies' digitalization on the neobanks' activities was analyzed and the risks of their activities were determined. At this stage, it was important to distinguish the risks that are characteristic of neobanks as part of the banking system and the risks that are characteristic of the entire system. It was also important to highlight the specific risks of neobanks, which are inherent in them as unique fintech companies. A parametric model for calculating the integral risk of neobanks based on the use of the matrix method of calculating the integral risk and the functional dependence of the integral risk on the neobanks' risks was also proposed.

In the third stage will be conducted a SWOT analysis in terms of the neo-banks' capabilities to take advantage of the opportunities and counter the risks entailed by the economy's digitalization. Accordingly, the strengths, weaknesses, opportunities, and threats for neobanks will be assessed at this stage of the research as opposed to the specific risks that are typical exclusively thereof. The research used data regarding the neobanks transaction volume as well as the number of their

users for the period 2017-2022 and forecast values until the year 2027. The dynamics analysis of neo-banking development will be conducted utilizing an analytical and graphical method for calculating the annual indicators growth and data visualization. Further, the method of strategic SWOT analysis will be applied to determine the internal and external factors of digitization's impact on neobanks. Data for the first stage of the study were taken from the official website of the statistical agency, [15], [16], [17], [18]. The research calculations and elaboration of visualizations were carried out in Microsoft Excel.

All of the calculated values provided in the article are the values simulated for the sake of clarity in displaying the order of parameter calculations and filling in the analytical tables. The numerical values provided do not reflect any real data and are presented to reflect the process of applying the parametric model of calculating the integral risk of neobanks based on the use of the matrix method of calculating the integral risk and the functional dependence of the integral risk on the neobanks risks.

## 4 Results

In recent years, there has been a significant increase in the volume of the neo-banking market, which indicates that more and more users of banking services prefer digital solutions in the use of banking services (Figure 1).

Figure 1 illustrates how the volume of neo-banks' transactions is growing annually, although the rate of growth is decreasing. The decrease in the yearly growth is due to the gradual saturation of the market, as well as the fact that neobanks compete with traditional banks that also offer online services to their customers. At the same time, there is a rapid increase in the number of biobank clients (Figure 2), which can testify to the rapid development of this sector in the financial market. However, as can be seen from Figure 3, the data indicate a steady trend toward growth in the volume of Neobank transactions per 1 user.

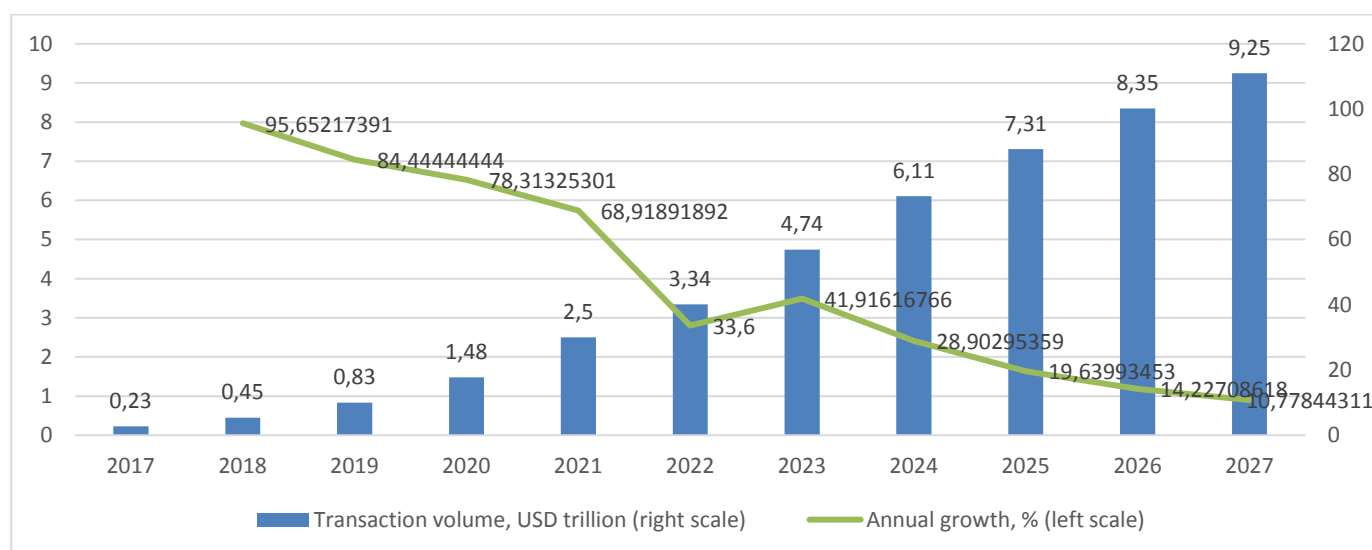


Fig. 1: Dynamics growth of the neo banking market, [15], [16]

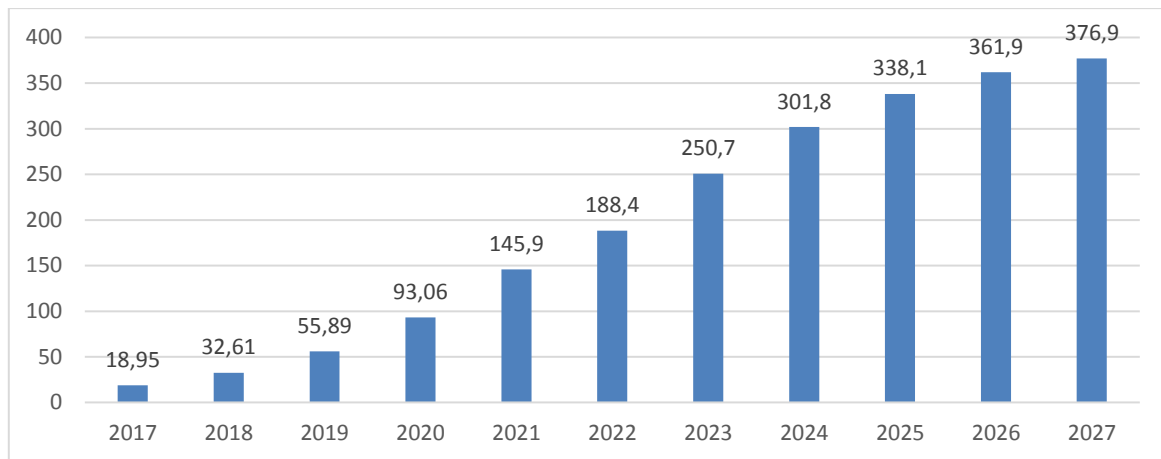


Fig. 2: Dynamics growth of neo-bank customers (millions of users), [15], [16]

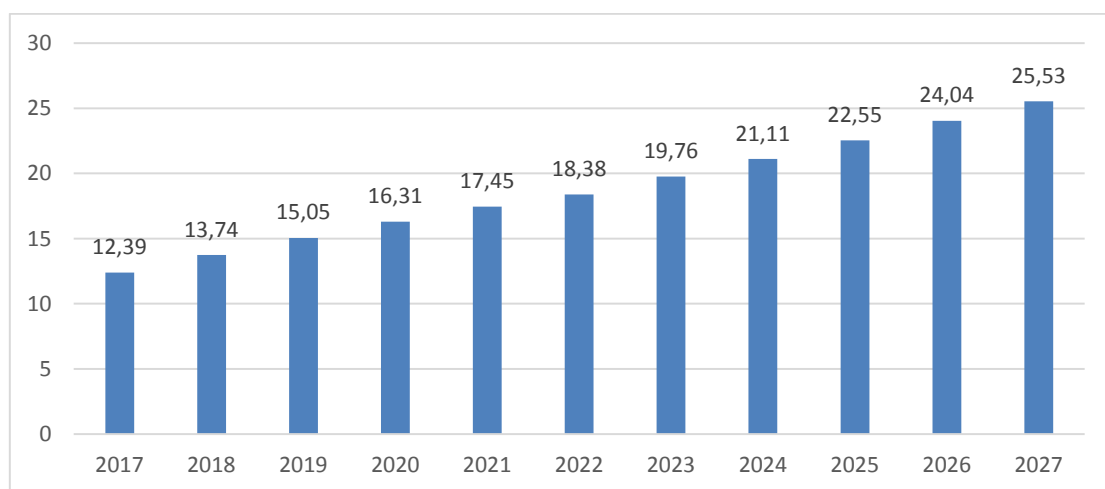


Fig. 3: The average volume of neo-banking transactions per user (thousands of USD), [17]

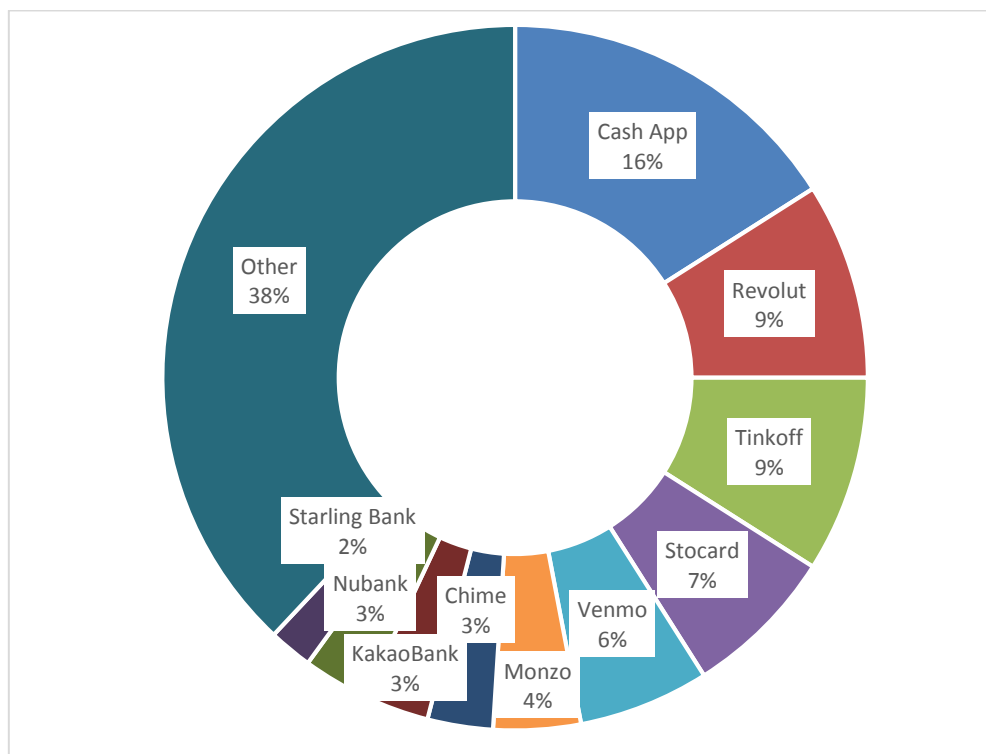


Fig. 4: Key participants in the neobanking market in 2022 by number of customers (%), [18]

The above trend indicates that along with the number of neo-bank clients, the amount of calculations they conduct is also growing. Among other things, this shows that there is a flow of capital from traditional banks to the disposal of neobanks, which means that users trust such fintech banks.

As of 2022, the 10 largest neobanks in the world accounted for more than 60% of the customers of all neobanks (Figure 4).

The data in Figure 3 indicate that at this stage of shaping the neobanking market, it has an oligopolistic structure. Entry into the market is limited, as it is necessary to obtain a license from the regulator to start such an activity, as well as the need to possess a considerable initial investment to start the activity. At the same time, there is a tendency for the appearance of new market participants, which will increase competition between them.

When it comes to probing deeper into the neo-banking development from the standpoint of institutional economic theory, obviously the former's development is related precisely to the digital society development and the spread of digital technologies among the population of most countries globally. At the brick-and-mortar banks, their digital communication channels are profusely developing, for instance, mobile applications and online banking to ensure customers' convenience and accessibility of services. Consequently, it enables the customers with convenience and speed to bank from virtually any location. Furthermore, banks actively use artificial intelligence and analytics to process large volumes of customer and transaction data. It allows for forecasting customer behavior, providing personalized recommendations and offers, as well as ensuring a high-security level by detecting suspicious transactions.

At the same time, neobanks, being, in fact, a product of digitalization, are also actively exposed to the influence of digitalization. Neobanks have digital platforms based on mobile applications and web platforms. This allows them to provide innovative and convenient financial services that appeal to a young and tech-savvy audience. Further, digitalization encourages the development of formats for providing payment services. Neobanks often offer innovative payment solutions such as prepaid cards, contactless payments, money transfers through mobile applications, which provide more convenient and faster transactions. Some neobanks focus on providing investment services, allowing clients to invest in various assets

through digital platforms with low fees and minimal restrictions.

Neobanks, like any financial institution, have risk threats in their activities. This is due to the specifics of their activity, business model, and use of digital technologies. Further, some of these risks should be considered (Figure 5).



Fig. 5: Risks inherent in neobanks against the digitalization background

**Technological risk.** Neobanks are heavily dependent on technology such as mobile applications, web platforms, and other digital solutions. Therefore, they are exposed to technological risk related to possible technical failures, data retention problems, cyber-attacks, and other technical problems.

**Risk of innovation.** Neobanks that work with innovative technologies and ideas are exposed to the risk that they may not be as successful or accepted by the market as they were expected to perform. Consequently, the innovative products may not find their customers or may not be profitable enough.

**Fintech partnerships.** A large number of neobanks cooperate with fintech startups and other technology companies. This may lead to risks associated with the partnership, in particular, fintech startups and technology companies can have unpredictable growth dynamics, as many of them are innovative enterprises. This can lead to financial difficulties, changes in strategy, or even the closure of the company, which will affect the services of the neo-banking partner. In addition, technology companies may face difficulties in implementing efficient business processes or ensuring the high quality of their products or services, which may affect the quality of services provided by Neobank.

Dependence on external service providers. Neobanks may depend on external providers of technology and other services to support their operations. This may create a risk of service interruption or disruption, affecting their ability to provide financial services.

Unfavorable development of regulatory policy. As neobanks grow in popularity, regulators may introduce new rules and standards that may affect their operations. Accordingly, neobanks must consider these risks and ensure compliance with applicable regulatory requirements.

Social risk. Some neobanks may focus on providing services to specific groups of consumers, which may create a risk of social rejection or conflict.

Given the fact that non-banks are most closely associated with the introduction of digital technologies, technological risks come to the fore among the mentioned risks. This can be seen by evaluating the results of statistical studies. In particular, it is worth paying attention to the data showing the level of fraud in the FinTech sector, which includes non-banks and certain types of fraud typical of traditional banking (Figure 6).

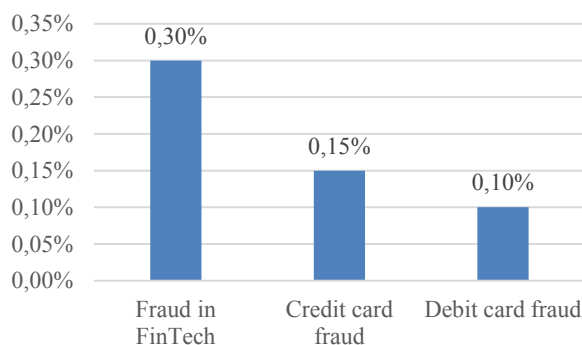


Fig. 6: Comparison of fraud in FinTech with other types of fraud typical of traditional banks (built by the author according to, [19])

Based on the above data, the average fraud rate at FinTech companies is 0.3%, which is twice the rate of credit card fraud (0.15%) and three times higher than debit card fraud (0.10%). Thus, it can be noted that the level of fraud in neo-banks significantly exceeds fraud in traditional banks. This can be explained by the fact that fraud can occur at many stages of the user journey, from account registration to transactions, so it is necessary to control all areas that attackers can attack. At the same time, more and more investments are poured into the neobank industry, which attracts fraudsters more and more. The costs of such fraud include not only the immediate actions but also the time and

effort required by the team to investigate, report, and fix the problem. The most appropriate countermeasure in this case is a reliable system of identifiers to detect fraud at all stages of the activity process, it is essential to take care of a high-quality registration system.

So, neobanks must consider the specific risks associated with their business model and the digital nature of their activities to succeed. It is crucial to ensure that risks are properly controlled and managed and to plan strategies to reduce and prevent them.

For the risk management of neobanks to be successful, we offer a model that will ensure a parametric estimation of these risks. Taking into consideration that in the structure of neobanks, the estimation of various risk types can be conducted by diverse functional divisions and performers, we set forward a matrix approach to solving this task. Thus, to tackle this issue, we distinguish the identified risks as follows:

- R 1: Technological risk
- R 2: Risk of innovation
- R 3: Fintech partnerships
- R 4: Dependence on service providers
- R 5: Regulatory policy risk
- R 6: Social risk

The degree of each risk varies from 0 to 1, where 0 is the minimum value and 1 is the maximum possible risk value. Such parameterization of risks is carried out by each responsible unit, which in the current article is designated as EXP. As a result of such a parametric estimation of each risk, a risk matrix can be elaborated as follows (Table 1).

Table 1. Risk matrix of neobanks\*

	R 1	R 2	R 3	R 4	R 5	R 6	IR
EXP 1	0,2	0,3	0,5	0,4	0,2	0,1	0,35
EXP 2	0,4	0,5	0,6	0,3	0,1	0,2	0,42
...	...	...	...	...	...	...	...

*Note: \*The parameters of the coefficients in Table 1 are provided to demonstrate the calculation example and do not reflect the real risk values*

Table 1 is a matrix of relationships, where each row corresponds to one division or expert of a neobank, and the columns represent the risk and integral risk (IR) values for that observation. Further, for each observation (expert or unit), a linear combination of risks is used to estimate the integral risk:

$$IR=a1*R1+a2*R2+ a3*R3+ a4*R4+ a5*R5+a6*R6$$

where:

$IR$  – integral risk;

$R1-R6$  – risks of neobanks;

$a1-a6$  – coefficients that determine the impact of each risk on the integral risk for a specific observation.

If a neobank already has empirical data for risk estimation, then coefficients  $a1-a6$  can be calculated empirically. If such data are not yet available, they are expertly determined and adjusted in accordance with the practical implementation of risks.

For the neobanks to be successful, they must be ready to effectively manage risks, implement cybersecurity measures, comply with regulatory requirements, as well as carefully analyze their financial transactions and interactions with clients. Particularly, in the digital environment where risks are related to security and data protection, cyber protection systems and the reliability of technical solutions are of great importance. However, if traditional banks are to a certain degree protected from

some types of cyber threats because they have paper media and business processes implemented offline, neobanks lack that. We will consider and analyze the possibilities of neobanks to address the risks of digitalization with the help of a SWOT analysis (Table 2).

Neobanks enjoy the advantage of using advanced digital technologies, which allows them to provide easy-to-use and innovative financial services. This can help neobanks attract new customers and retain existing ones, helping to counter the risk of losing customers. The absence of physical branches allows neobanks to be flexible and quickly adapt to changing market conditions. Accordingly, this ensures reducing the risk of loss of competitiveness in the market. The use of artificial intelligence and analytics allows neobanks to provide personalized solutions and services to customers, which enhances customer loyalty and satisfaction, thereby reducing the risk of losing customers.

Table 2. SWOT analysis for neobanks in terms of risks of economies' digitalization

Strengths	Weaknesses
<ol style="list-style-type: none"> <li>1. Digital technologies: neobanks have access to advanced digital technologies, which allows them to quickly and efficiently offer customers innovative financial services with the highest degree of data protection.</li> <li>2. Flexibility: the absence of traditional branches allows neobanks to reduce costs and more quickly adapt to changing market conditions and customer requirements, in particular under the pandemic restrictions.</li> <li>3. Convenience for customers: The digital format allows customers to carry out banking operations from anywhere, which ensures convenience and accessibility of services.</li> <li>4. Innovation: neobanks are actively developing and implementing new technologies, which allows them to offer customers unique solutions and services.</li> </ol>	<ol style="list-style-type: none"> <li>1. Lack of physical branches: for some customers, the complete absence of traditional bank branches can be confusing, which can cause mistrust.</li> <li>2. Security: there exists a risk of cyber attacks and fraud as all transactions are conducted in an online environment. Protection against cyber threats is becoming critical.</li> <li>3. Limited services: some neobanks may offer a limited range of financial services compared to traditional banks.</li> </ol>
Opportunities	Threats
<ol style="list-style-type: none"> <li>1. Market Expansion: digital technologies open opportunities for global expansion and attracting new customers from around the world.</li> <li>2. Strengthening partnerships: neobanks can establish partnerships with other financial and technology companies to expand their services and improve integration with the ecosystem.</li> <li>3. Improved personalization: with the help of data analysis, neobanks can collect information about their customers and provide personalized financial solutions, as well as provide strong two-step authentication for increased security.</li> </ol>	<ol style="list-style-type: none"> <li>1. Competition: traditional banks and other financial technology startups are also actively developing their digital services, creating enhanced competition in the market.</li> <li>2. Regulatory policy: changes in legislation can affect the activities of neobanks and increase the volume of necessary documents and security requirements.</li> <li>3. Technical problems: failures, errors, and other technical problems can negatively affect customer trust.</li> </ol>



Digital technologies allow neobanks to expand their activities in international markets without the need to open physical offices in each country. This opens up new opportunities for increasing the client base and increasing profits. Neobanks have great potential to successfully grow and counter risks, but they must actively work on improving security, personalization, and competitiveness to successfully retain and attract customers in the digital world.

Drawing on the constructed matrix illustrating the SWOT analysis, it is expedient to quantify the impact of each element. To address this task, we first elaborate a weight matrix of relationships between strengths (S), weaknesses (W), opportunities (O), and threats (T). The matrix is filled in drawing on a parameterized employees' expert estimation representing Neobank's relevant departments (Table 3).

Table 3. Weight matrix of relationships between strengths (S), weaknesses (W), opportunities (O) and threats (T)\*

	S	W	O	T
S	9	5	7	3
W		3	4	2
O			8	6
T				5

Note: \*The parameters of the coefficients in the table are given to demonstrate a calculation example and do not reflect real values

Having addressed the above, it is necessary to normalize the weights of each element. To do this, we divided each element of the weight matrix by the sum of the weights for the applicable category (Table 4).

Table 4. Normalized weight matrix of relationships between strengths (S), weaknesses (W), opportunities (O), and threats (T)\*

	S	W	O	T
S	0.450	0.2941	0.3043	0.1500
W		0.1765	0.1739	0.1000
O			0.3478	0.3000
T				0.2500

Note: \*The parameters of the coefficients in the table are given to demonstrate a calculation example and do not reflect real values

Drawing on the obtained weights, we can determine the parameterized value of the influence degree of each element in the SWOT matrix, which is defined as the sum of the products of the normalized weights by the factor weights:

For strengths (S):  
 $0.45 \cdot 9 + 0.2941 \cdot 5 + 0.3043 \cdot 7 + 0.15 \cdot 3 = 7.1054$

For weaknesses (W):  
 $0.1765 \cdot 3 + 0.1739 \cdot 4 + 0.1 \cdot 2 = 1.488$

For opportunities (O):  $0.3478 \cdot 8 + 0.3 \cdot 6 = 5.6704$

For threats (T):  $0.25 \cdot 5 = 1.25$

The obtained values represent an estimation of each element's impact on the SWOT matrix and allow an evaluation of the ratio of its elements. Determination of the ratio of influence is based on the obtained indicators, which are given in the previous paragraph. The greater the value of the indicator, the stronger its influence. In our example, the strengths have a value of 7.1054, which is the largest. Accordingly, strengths have the greatest impact, which should be taken into account when making relevant management decisions.

## 5 Discussion

Comparing the obtained results with the results of other studies, it is worth noting that several studies also maintain that neobanks are characterized by the risks of the traditional banking system, [20], [21]. In our research, we highlight the risks that are specific to neobanks due to the specifics of their activities. This insight into the risks significantly widens the divide between traditional banks and neobanks to tackle such risks.

A recent study, [22], reveals the issue of the location of neobanks and indicates that more than 57% of all neobanks in Europe are located in Germany, Italy, and France. However, the results of our research show that the impact of digitization on economies is so significant that the activities of neobanks are not in any way limited territorially. Moreover, the determining factors in their development are institutional factors that provide the necessary regulatory and legislative basis for their functioning.

In yet another study, [4], [23], the authors conclude that the key differences between traditional banks and neobanks lie in the differences in their business models. Based on this, the risks also differ. The findings of our research indicate the presence of both common risks and solely particular ones that are specific to neobanks. A study, [24], is devoted to the management of one of these risks, in which a strategy for addressing the security of information assets is elaborated. Violation of the security of information assets, according to our

classification, belongs to the technological risks of neobanks, which are defined in work as the most threatening. Therefore, the noted work is helpful for further deepening the author's research, in particular, the formation of approaches to the management of certain technological risks. The results of the SWOT analysis show that neobanks also have certain advantages compared to traditional banks due to the specificity of their business model, which is based on digitalization. Our conclusions about the advantages of neobanks are also confirmed by research on the future of banking, [25], in which it is noted that the latest technical solutions of neobanks can make them leaders in the industry, allow them to capture a significant share of the market and significantly increase profitability.

Although at this stage of neobanks' development, their absolute virtuality is perceived more from the point of view of risk, in the near future the development of technologies will provide such a high level of cyber protection that it will become practically insignificant for the financial sector, [2]. In this case, we share the authors' standpoint, as we believe that digitization is impossible without improving security, and the trend toward digitization is unquestionable. Under such conditions, with maximum cyber security, neobanks will be able to direct resources to the maximum extent to the realization of their opportunities, which we discovered during the SWOT analysis.

Despite all the advantages of neobanking, they will come short of displacing traditional banks from the market, [26]. This is because the latter are also transforming their business models and implementing solutions to provide their customers with online payment platforms and remote account management. Hence, the researchers, [27], come to a similar conclusion, maintaining that consumers of banking services who are clients of neobanks tend to keep open accounts in traditional banks as well, as a way to minimize risks. In, [3], [13], the authors also emphasize that neo-banks should not be perceived as a threat by traditional banks. At the same time, the latter should use the opportunity to cooperate with non-banks to improve the customer experience, reduce operating costs, reach a larger audience, and increase the availability of financial services. Our research shows that traditional banks today remain more reliable providers of financial services, which can give them a temporary advantage in attracting customers. While neo-banks are at the stage of formation, traditional banks have time to carry out the necessary digital transformations.

Drawing on the results of our research, the opportunities for the development of neobanks are

connected with the use of artificial intelligence. It is artificial intelligence that will ensure the collection and analysis of data about customers, their behavior, and preferences and will provide the opportunity to use this information to enhance the services and provide personalized offers to customers. Similar conclusions are arrived at in a study devoted to the future of banking, [28]. Artificial intelligence will be inextricably linked with digitization, and therefore its use in the development of neobanking is also inevitable.

Thus, the key advantage of the presented research is the formation of a thorough list of risks specific to neobanks, as well as their comparison with the main opportunities in the field of neobanking. This allows us to propose the main areas of integral risk assessment for neobanks based on specific components, which is a key contribution of the work beyond alternative studies. In contrast to many studies, the work revealed that today, the sphere of neobanking is characterized by a higher level of risk than traditional banks. However, this conclusion is limited to the analysis of purely technological risks, in particular, fraud in the electronic sphere.

## 6 Conclusion

Neobanks have the advantage of using advanced digital technologies, which allows them to provide convenient and innovative financial services. This can help the former to attract new customers and retain existing ones, helping to counter the risk of losing customers. The absence of physical branches allows neobanks to be flexible and quickly adapt to changing market conditions. Consequently, this allows for reducing the risk of loss of competitiveness in the market. The use of artificial intelligence and analytics allows neobanks to provide personalized solutions and services to customers, which increases customer loyalty and satisfaction, thereby reducing the risk of losing customers. Digital technologies provide neobanks with the opportunity to expand their activities in international markets without the need to open physical offices in each country. This opens up new opportunities for increasing the client base and increasing profits.

However, neobanks are characterized by specific risks that can significantly harm both the bank itself and its clients. With the use of digital technologies, the risk of cyberattacks and unauthorized access to customer financial data increases. Neobanks must pay due attention to cyber security and ensure data protection. Outages, errors,

and other technical problems can negatively affect customer confidence and lead to loss of business. The scientific novelty of the obtained results lies in the proposed parametric model of neobanks' integral risk assessment based on the outlined component risks.

The obtained results can be applied in the elaboration of framework project documents for promoting the development of neobanking as well as while developing the neobanks' risk management policy based on the proposed parametric risk estimation approach.

The conducted research opens promising perspectives for future research regarding the effectiveness of neobanks' risk management in the current conditions of economies' digitalization.

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