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TABLE OF CONTENTS

ENVIRONMENTAL AND ECONOMIC RISKS IN THE CONTEXT OF FINTECH DEVELOPMENT

Khudolii Yuliia,
Ph.D., Associate Professor
National University «Yuri Kondratyuk Poltava Polytechnic»

Hlushko Alina,
Ph.D., Associate Professor
National University «Yuri Kondratyuk Poltava Polytechnic»

Introduction. The development of digital technologies is increasingly affecting the global economy and the environment. Over the past couple of years, FinTech companies have been taking full advantage of data access, technology, innovation culture, and advanced analytics to transform the banking ecosystem. This has had a significant impact on the infrastructure, access to financial services, distribution, security, and resilience components of the banking sector, as well as created additional economic and environmental risks.

Due to the coronavirus pandemic, consumers' willingness to try new digital financial services has increased rapidly, which has led to an acceleration in the rates of innovation in the banking sector (Figure 1, [1]). As bank branches began to close, providers of both traditional and non-traditional financial services were forced to respond to the need for fast and simple solutions that simplified banking services. At the same time, technological innovations have become an additional factor in increasing the existing economic and environmental risks.

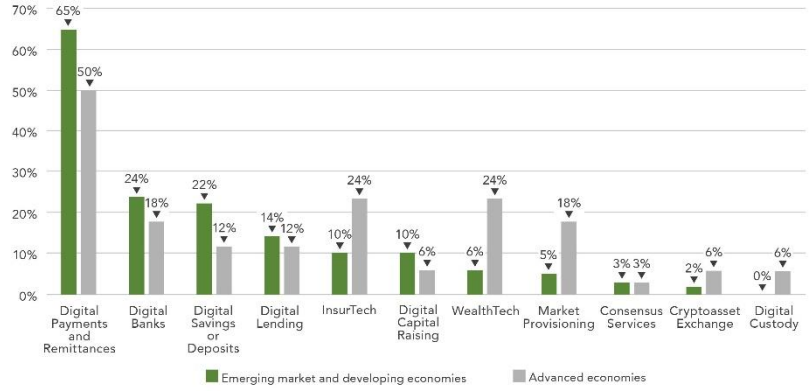

Figure 1. Impact of the COVID-19 Pandemic on FinTech (COVID-19 spurred a rise in FinTech. Now regulators are catching up, 2020)

Today, there are several environmental and economic risks associated with the development of fintech, especially in the context of green banking and sustainable development. Identifying and taking into account these risks will reduce their negative impact on environmental management and create conditions for minimizing the consequences. On the other hand, the development of fintech can have several positive

impacts on economic and environmental risks, which should be taken into account in the strategies for the development of financial technologies of companies and Ukraine.

Theory. Over the past few years, as the number of fintech companies has grown, the number of studies on the impact of their activities on the environment and sustainable development has been increasing. An analysis of the literature shows that a significant part of the research is devoted to the impact of green fintech companies on sustainable development, [2]. In addition, green fintech innovations are studied in terms of improving the flow of financial resources for sustainable development, [3].

Some studies have focused on the development of fintech innovations in the context of the impact and mechanisms of fintech innovations on the bank's ability to manage risks, thereby reducing the level of risk taking, [4]. However, the rapid development of fintech requires careful consideration of risks that have a significant impact on the environment and the economy.

Results. Recently, the financial technology industry has been undergoing rapid changes. One of the most significant changes has been the introduction of new FinTech products and services designed specifically to fulfil certain functions within the financial ecosystem. At the same time, technologies such as digital banking, artificial intelligence, Open Banking, microservices, mobile wallets and blockchain are rapidly developing and spreading in the practice of financial institutions.

Artificial intelligence and machine learning. Currently, banks around the world are adjusting their tactics for artificial intelligence (AI) solutions, which will contribute to the significant spread of AI in this business area. According to autonomous studies, AI is expected to reduce banks' operating expenses by about 22% by 2030. Artificial intelligence is well structured and prepared to mitigate the rapidly growing threats of fraud in finance, combat the growing number of cybercrimes, and solve many other banking security issues. In addition, credit risk assessment based on artificial intelligence (AI) and machine learning (ML) is becoming more efficient and effective. From regulatory technologies to robot advisors, AI/ML systems allow companies to better monitor customer behaviour and identify opportunities for growth and anomalies.

Open Banking. Open Banking is a technology that connects banks, third parties and technology providers, allowing multiple institutions to create networks for data transfer. Open Banking allows for the secure exchange of financial information about a customer with their consent, such as spending and habits. This technology allows third-party applications to control customers' banking and other financial data through data exchange using APIs (Application Programming Interface) and artificial intelligence. Various industry giants predict that open banking will revolutionize the banking industry. In addition, according to a study by Allied Market Research, open banking generated $7.29 billion in revenue in 2018, and by 2026, revenues will reach $43.15 billion. This, in turn, stimulates increased investment in this technology (Fig. 2).

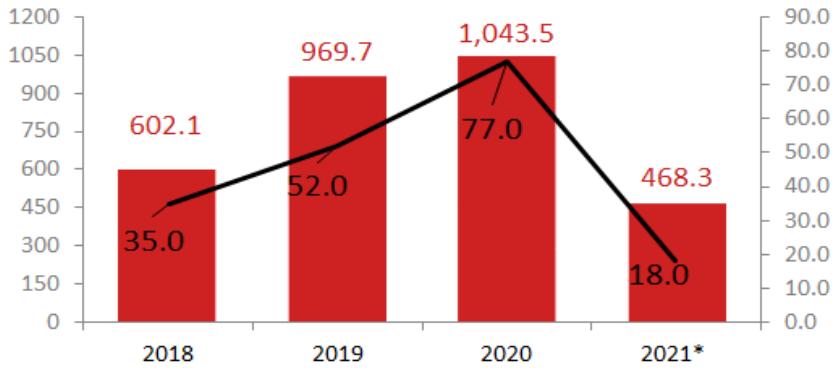

Figure 2. Investments in open banking by years, billion $ USD (https://blog.themoneycloud.com/digital-currencies/open-banking-2021-report-by-medici)

Blockchain. A blockchain is a distributed database that stores an ordered chain of records (called blocks) that is constantly growing longer, [9]. Each block contains a time stamp, a hash of the previous block, and transaction data represented as a hash tree. The advantages of blockchain technology are: time savings (it provides access that does not require verification by supervisory authorities, making the process fast and fairly cheap); cost savings (the blockchain network helps to reduce costs in many ways. None of these methods requires third-party verification and participants can send assets directly to each other. This reduces the number of intermediaries and also helps to minimize the number of transactions, as all participants have copies of the general ledger); higher level of security (this means that it is impossible to change blockchain data as it is distributed among millions of participants. This makes the system safe from both cybercrime and fraud). Nowadays, the scope and application of blockchain technology is gradually growing, and the average annual growth rate is projected to reach 78.8% by 2026 (Fig. 3).

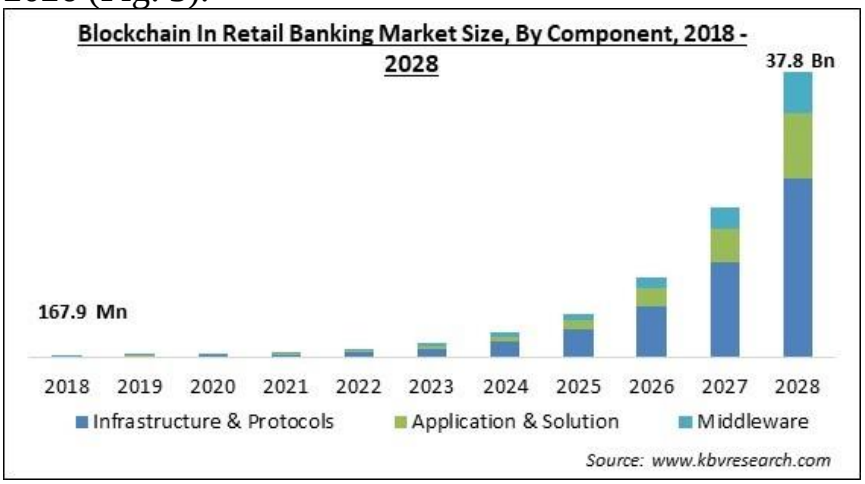

Figure 3. Global blockchain adoption in the banking, financial services and insurance markets (https://www.kbvresearch.com/blockchain-in-retail-banking-market)

The implementation of digital banking, artificial intelligence, open banking, and blockchain have a significant impact on economic and environmental risks. Let us consider the main ones.

The key economic risks include

− Cybersecurity: the growing number of digital transactions and increased dependence on Internet technologies leads to an increased risk of cyberattacks. If fintech companies do not ensure a high level of cybersecurity, this can lead to financial losses and data privacy violations;

− Financial instability: the rapid development of fintech allows for the creation of new financial products and services that are less regulated or insufficiently studied in terms of risks. This creates an additional level of financial instability that increases the risk of a financial crisis;

− Unequal access: modern digital financial services are inaccessible to certain groups of the population, especially those who do not have access to the Internet or lack technological skills. This deepens social inequality.

The main environmental risks include:

− Energy consumption: the growing amount of computing power used by fintech companies, especially those using blockchain technologies, consumes significant amounts of energy, leading to increased energy consumption and carbon emissions;

− Resource use: the significant amount of computing and data processed by fintech companies has a significant impact on environmental sustainability. This can lead to the depletion of resources such as water and metals used to produce data processing equipment. Especially if companies do not take measures to reduce their ecological impact;

− Social responsibility: Fintech companies that do not take steps to reduce their environmental impact may have a negative image among environmentally conscious customers and investors. They may also suffer from a negative image in social media and the media;

− Environmental awareness: the involvement of digital banks in environmental and sustainability initiatives can affect their reputation and help raise awareness of environmental issues among customers.

Conclusions. In response to these risks, many fintech companies have begun to implement green practices, improve cybersecurity, and adhere to social responsibility. Some fintech banks are already using the Sustainability-as-a-Service model. For example, by directing customers' purchases to environmentally friendly partner companies. Or they offer a «green concierge» service that helps customers on their way to a more sustainable lifestyle through data analysis. The function of calculating the carbon footprint is also very popular among fintechs, neobanks, and digital banks.

The empirical results show that it is important to continue to monitor and assess these risks in the context of the rapidly growing fintech sector. This is because balanced management of economic and environmental risks can help fintech companies and digital banks achieve sustainability and efficiency in their operations, while protecting both financial and environmental interests.

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