

UDC 336.71

**Bondarenko L.**

*Ph. D. in Economics, Associate Professor,  
Associate Professor of the Department of Finance,  
Lviv Polytechnic National University, Ukraine;  
e-mail: lidiia.p.bondarenko@lpnu.ua; ORCID ID: 0000-0002-3313-3569*

**Moroz N.**

*Ph. D. in Economics, Associate Professor,  
Associate Professor of the Department of Finance,  
Lviv Polytechnic National University, Ukraine;  
e-mail: nataliia.v.moroz@lpnu.ua; ORCID ID: 0000-0002-8594-8014*

**Zhelizniak R.**

*Ph. D. in Economics,  
Associate Professor of the Department of Finance,  
Lviv Polytechnic National University, Ukraine;  
e-mail: roman.y.zhelizniak@lpnu.ua, ORCID ID: 0000-0001-9033-4490*

**Bonetskyy O.**

*Ph. D. in Economics,  
Assistant of the Department of Pharmacy and Biology,  
Stepan Gzhytskyi Lviv National University of Veterinary Medicine and Biotechnologies, Ukraine;  
e-mail: grz.fb.orest.bonetskyy.2021@gmail.com; ORCID ID: 0000-0002-5797-0310*

### **FINTECH MARKET DEVELOPMENT IN THE WORLD AND IN UKRAINE**

**Abstract.** The trends of fintech development in the world and in Ukraine have been explored in the article. The COVID-19 pandemic has spurred accelerated financial innovation development and increase of investment in this area. Fintech's payment sector has the highest investment activity and investors' interest in such sectors as cybersecurity, regtech, cryptocurrency and blockchain is growing. Investors prefer US, UK, and German markets, as well as already developed, sustainable businesses. These investors' interests and the concentration of investments are projected to continue in the coming years. Ukraine is characterized by a low level of development of financial technologies, but there has been an increase in investment activity in fintech, particularly in 2020 investments were increased in the early stages of business development. The development of fintech in Ukraine is expected to accelerate due to the recent positive changes that have taken place in this direction: a new law on financial monitoring has been enacted, allowing remote identification and verification of clients; the Law of Ukraine «On Virtual Assets» has been enacted, which will allow to regulate the process of circulation of cryptocurrency and development of the cryptosphere; the NBU has become the regulator of financial institutions and creating equal conditions for banking and non-banking institutions to operate on the market; the Fintech Development Strategy 2025 has been developed to stimulate innovation, improve the availability and quality of financial services, and create a strong fintech ecosystem; the Ukrainian Startup Fund has been established to promote the creation and development of technological startups. The following directions for further development of fintech in Ukraine have been defined: improving financial and digital literacy; increasing the availability and safety of non-cash transactions; developing the infrastructure of the fintech ecosystem; integration of the national fintech ecosystem into the global fintech ecosystem; accretion of the fintech market investment potential; financial services sector digitalization. It is necessary to introduce modern transparent methods of regulating the fintech market in order to stimulate financial innovation projects and consumer protection, to stimulate interaction of fintech companies and banks, other financial institutions towards the development and diffusion of financial innovations.

**Keywords:** fintech, investments, innovations, fintech market, fintech companies.

**JEL Classification** G20, G24

Formulas: 0; fig.: 4; tabl.: 0; bibl.: 13.

**Бондаренко Л. П.**

*кандидат економічних наук, доцент,*

*доцент кафедри фінансів,*

*Національний університет «Львівська політехніка», Україна;*

*e-mail: lidiia.p.bondarenko@lpnu.ua; ORCID ID: 0000-0002-3313-3569*

**Мороз Н. В.**

*кандидат економічних наук, доцент, доцент кафедри фінансів,*

*Національний університет «Львівська політехніка», Україна;*

*e-mail: nataliia.v.moroz@lpnu.ua; ORCID ID: 0000-0002-8594-8014*

**Желізняк Р. Й.**

*кандидат економічних наук, доцент кафедри фінансів,*

*Національний університет «Львівська політехніка», Україна;*

*e-mail: roman.y.zhelizniak@lpnu.ua; ORCID ID: 0000-0001-9033-4490*

**Бонецький О. О.**

*кандидат економічних наук, асистент кафедри фармації та біології,*

*Львівський національний університет ветеринарної медицини та біотехнологій*

*імені С. З. Гжицького, Україна;*

*e-mail: grz.fb.orest.bonetskyu.2021@gmail.com; ORCID ID: 0000-0002-5797-0310*

## РОЗВИТОК РИНКУ ФІНТЕХ У СВІТІ ТА В УКРАЇНІ

**Анотація.** Досліджено тенденції розвитку фінтеху у світі та в Україні. Пандемія COVID-19 стала поштовхом до прискорення розвитку фінансових інноваційних технологій і зростання інвестицій у цю сферу. Найвищу інвестиційну активність має платіжний сектор фінтеху, спостерігається зростання інтересу інвесторів до таких секторів: кібербезпеки, регуляторних технологій, криптовалюти і блокчейн. Інвестори надають перевагу ринкам США, Великої Британії та Німеччини, а також уже розвиненим, стійким бізнесам. У найближчі роки прогнозується збереження цих інтересів інвесторів і концентрації інвестицій. Україна характеризується невисоким рівнем розвитку фінансових технологій, разом з тим спостерігається зростання інвестиційної активності в український фінтех, зокрема, 2020 року зросли інвестиції на ранніх стадіях розвитку бізнесу. Очікується пришвидшення розвитку фінтеху в Україні завдяки нещодавнім позитивним змінам, що відбулися в цьому напрямі: ухвалено новий закон із фінансового моніторингу, що надав можливість віддаленої ідентифікації та верифікації клієнтів; ухвалено Закон України «Про віртуальні активи», що дасть можливість урегулювати процес обігу криптовалюти і розвитку криптосфери; регулятором фінансових установ став НБУ, що створює рівні умови функціонування на ринку банківських і небанківських установ; розроблено Стратегію розвитку фінтеху до 2025 року з метою стимулювання інноваційних процесів, підвищення доступності та якості фінансових послуг, створення міцної фінтех-екосистеми; засновано Український фонд стартапів для сприяння створенню та розвитку технологічних стартапів. Окреслено такі напрями подальшого розвитку фінтеху в Україні: підвищення рівня фінансової та цифрової грамотності; підвищення доступності безготівкових операцій та їхньої безпеки; розвиток інфраструктури фінтех-екосистеми; інтеграція національної фінтех-екосистеми у світову; нарощення інвестиційного потенціалу ринку фінтех; діджиталізація ринку фінансових послуг. Необхідним є запровадження сучасних прозорих методів регулювання ринку фінтех для стимулювання фінансових інноваційних проєктів і захисту споживачів; поглиблення взаємодії фінтех-компаній і банків, інших фінансових установ у напрямі розроблення і поширення фінансових інновацій.

**Ключові слова:** фінтех, інвестиції, інновації, ринок фінтех, фінтех-компанії.

Формул: 0; рис.: 4; табл.: 0; бібл.: 13.

**Introduction.** The COVID-19 pandemic has accelerated the development of digital technology, leading to a rapid growth in financial technology and e-commerce. Financial companies

have to upgrade their financial services to meet modern requirements in order to be attractive to consumers. However, there is a problem of limited capacity to develop financial technologies in developing countries. The World Bank research shows that 37 per cent of the population of Ukraine is outside the financial system [1]. This figure is high enough for the country that is at the forefront in promoting financial inclusion of the state. This situation calls for an improvement in the technological and investment climate.

**Analysis of recent research and problem statement.** Such domestic scientists have investigated the peculiarities of the development of the world and Ukrainian market of financial technologies in their works as: Dobosh N. M., Kloba L. G. [2], Raputa K. A. [3], Savchenko T. [4], Shevchenko A. N. [5] and many others.

Theoretical approaches to fintech, empirical research in fintech and prospects for future development have been reflected in the work of such foreign scientists as: Allen F., Gu X., Jagtiani J. A. [6], Lagna A., Ravishankar M. [7], Li B., Xu Z. S. [8], Ryu H.-S., Ko K. S. [9], Wójcik D. [10].

Taking into account these significant achievements of economists-scientists, it is worth noting that modern trends of development of fintech in the world and in Ukraine require further research.

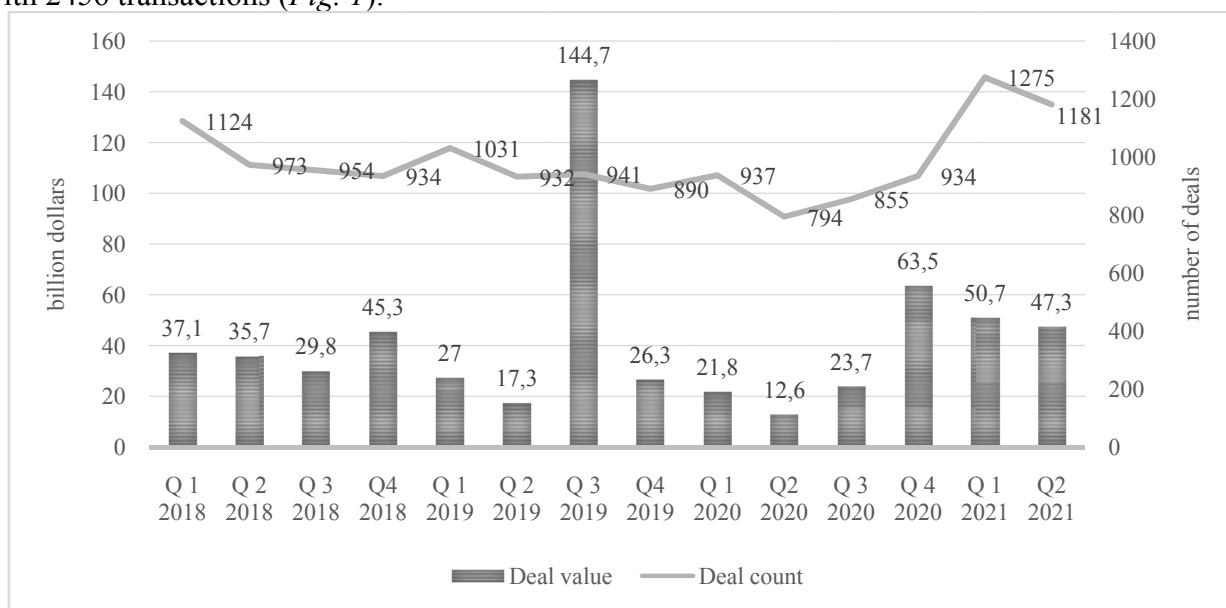
The purpose of the article is to study current trends in the development of the world and Ukrainian market of financial technologies, to define its main problems and prospects.

**Research results.** The payment sector is leading the investment, ecosystem platforms and retail programmes are being financed actively. Investors are getting increasingly interested in cybersecurity and regtech. In an era of rapid digital development, regulatory compliance and business safety are important. Cryptocurrency and blockchain are gaining considerable popularity among investors as well as governments and regulators.

The fintech market is one of the most attractive for venture investors, maintaining its high potential. The advantage in investment is given to already developed, large-scale, sustainable businesses as well as the markets of the United States, Great Britain and Germany. Researchers predict that these trends in investor interest and in investment concentration will remain in place in the coming years [11].

Forbes has declared 2020 the year of fintech, which is the most promising industry in the world. Nowadays there are now more than 80 fintech companies with an estimate of \$1 + billion [1].

In the first half of 2021, global investments in financial technology amounted to \$98 billion, with 2456 transactions (*Fig. 1*).



**Fig. 1. Global investment activity in fintech, 2018 — first half of 2021**

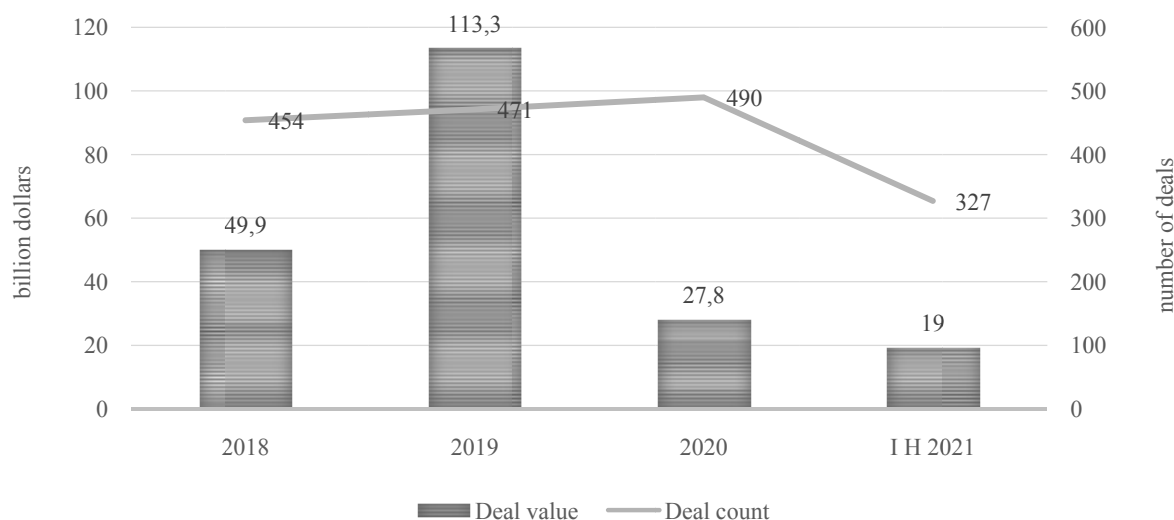
Source: compiled according to the source [11].

The highest investment activity was in the third quarter of 2019, with \$144.7 billion invested in 941 deals. Two of the most significant agreements were Worldpay’s \$42.5 billion acquisition by Fidelity National Information Service (FIS) and Fiserv’s \$22 billion acquisition of First Data.

During 2018, \$147.9 billion was invested in financial technologies and \$215.3 billion during 2019. For comparison, in 2011 only \$1.8 billion was invested.

The largest share of investment is in payments, which is constantly diversifying and improving. Global financial technologies have developed significantly during the pandemic. The rapid growth of contactless payments and e-commerce during the pandemic has led to increased investors’ interest in fintech in payments.

In 2018, \$49.9 billion was invested in payments, in 2019 — \$113.3 billion, in 2020 — \$27.8 billion and in the first half of 2021 — \$19 billion (Fig. 2).



**Fig. 2. Global investment activity in payments, 2018 — first half of 2021**

Source: compiled according to the source [11].

During the first half of 2021, interest in fintech grew rapidly in most regions of the world. KPMG [11] predicts that in the second half of 2021 this interest will remain, as well as:

- increased attention to cryptocurrency and trading platforms, will capture alternative asset trading, NFTs, and support structures;
- increased M & A activity in mergers and acquisitions to encourage corporations to increase transnationalization and universalization;
- increase of the importance of cybersecurity in protecting their businesses from fraud, cyberattacks;
- increased attention to B2B services such as banking-as-a-service, and not only in the sphere of payments, but also in the spheres of regtech, wealthtech, and insurtech;
- development of a multi-stakeholder partnership in the financial sector to expand the range of services provided by financial companies.

During the pandemic, awareness of the importance of tech skills has increased significantly, but there is a problem of limited opportunities for their development in developing countries, particularly in Ukraine.

In 2020, the following measures were taken towards the development of fintech in Ukraine:

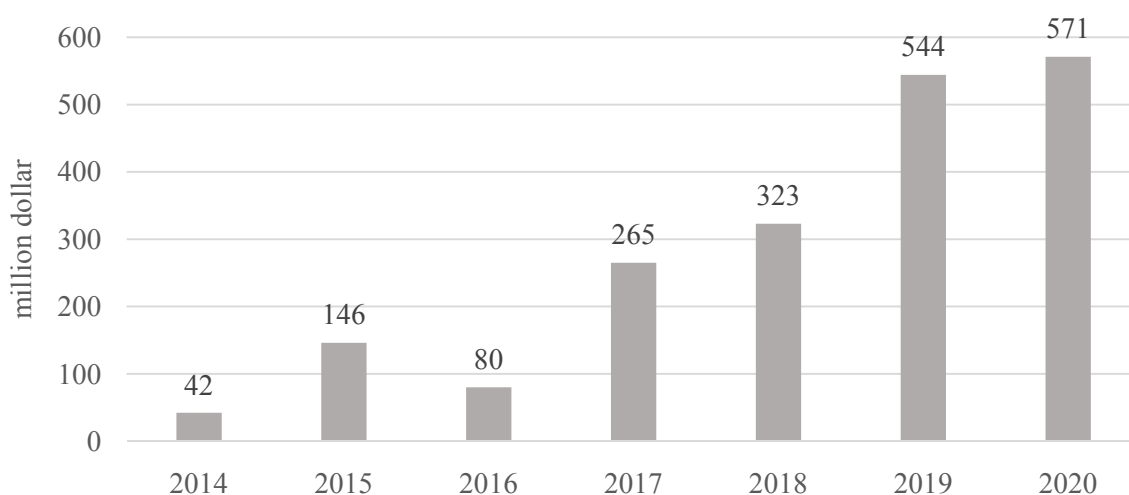
- a new law on financial monitoring was enacted, allowing remote identification and verification of clients;
- the Law of Ukraine «On Virtual Assets» was enacted, allowing to regulate the process of circulation of cryptocurrency and development of the cryptosphere;

- the NBU became the regulator of financial institutions, creating equal conditions for banking and non-banking institutions to operate on the market;
- the Fintech Development Strategy 2025 [12] was developed to stimulate innovation, improve the availability and quality of financial services, and create a strong fintech ecosystem;
- the Ukrainian Startup Fund was established to promote the creation and development of technological startups.

Quarantine restrictions have accelerated the process of financial services digitalization. Increased competition in the financial market encourages businesses to innovate actively. During the pandemic, banks and fintech have worked together to improve remote customer service and this partnership should be developed further.

Ukrainian fintech projects have received good opportunities thanks to cooperation with the global technology platform Visa, which created favorable conditions for realization of new business ideas to participants of fintech market.

In 2020, \$571 million was invested in Ukrainian fintech in the form of private and venture capital, which is 5% more than in the previous year. According to DealBook 2021 [13] (annual survey of the venture market of Ukraine) this index is a record for our country. AirSlate, Creatio, GitLab, Restream received 62% of the investments in 2020. This year's fast-growing startup was Reface (*Fig. 3*).



**Fig. 3. Investment activity in Ukrainian fintech, 2018—2020**

*Source:* compiled according to the source [13].

In 2019, a \$544 million investment was raised, a 68.4% increase (\$199 million) over 2018. At the same time, 77% of the investments in 2019 were received by Grammarly, GitLab, People.ai. In the early stages of financing, startups raised \$ 44 million [13].

During 2020, early-stage investment grew by 250% to \$161 million, of which \$42 million was invested in the seed stage and \$119 million in the series A stage. Most of the funds were invested by foreign investors. Ukrainian investors invested in the early stages (seed and series A) of attracting capital to national startups, only Dragon Capital and Horizon Capital invested in the business growth phase (*Fig. 4*).

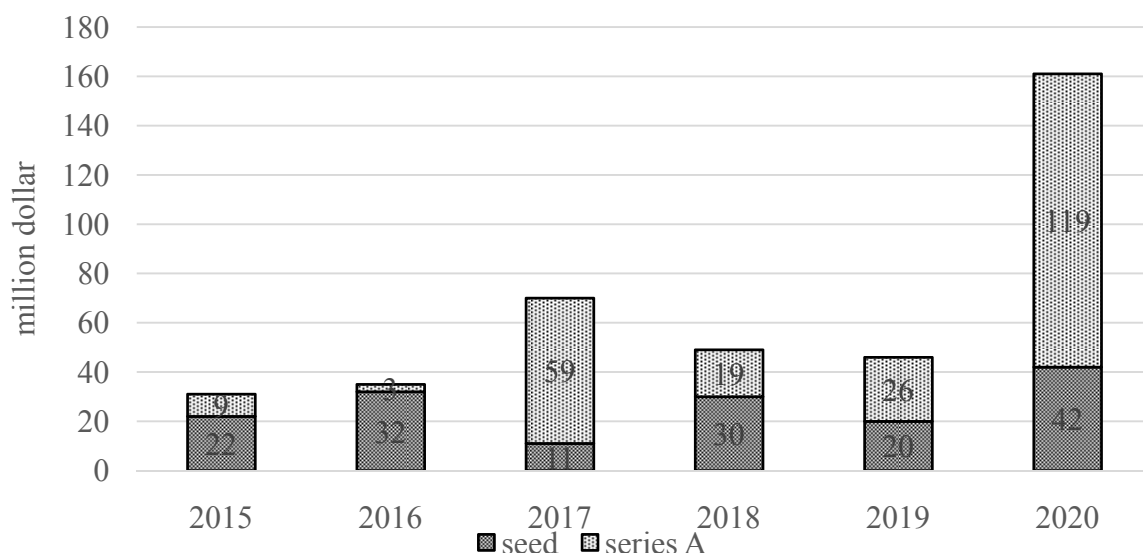


Fig. 4. Investing in Ukrainian fintech in the early stages, 2018—2020

Source: compiled according to the source [13].

In 2020, the amount of funding at the beginning of the business more than doubled, compared to 2019, to \$42 million and in the A series stage rose more than fourfold, reaching a record value of \$119 million.

The growth of investment activity in the context of the crisis and achievement of high development indicators at this time indicates the sustainability and adaptability of the Ukrainian fintech-ecosystem. Its further development depends on the capabilities of financial technology market participants.

Directions for further development of fintech in Ukraine:

- improving the level of financial and digital literacy;
- improving the availability and safety of non-cash transactions;
- fintech-ecosystem infrastructure development;
- integration of the national fintech ecosystem into the global fintech ecosystem;
- accretion of the fintech market investment potential;
- financial services market digitalization.

**Conclusions.** Trends in the development of the Ukrainian financial technology market are in line with general world trends. In Ukraine, however, fintech is developing at a slower pace than in other European countries and this market is mostly limited to payment services and online lending. It is necessary to introduce modern transparent methods of regulating the fintech market in order to stimulate financial innovation projects and consumer protection, to stimulate interaction of fintech companies and banks, other financial institutions towards the development and diffusion of financial innovations.

#### Література

1. Каталог фінтех-компаній України 2020 / Українська асоціація фінтех та інноваційних компаній. URL : <https://fintechua.org/market-map> (дата звернення: 13.10.2021).
2. Кльоба Л. Г., Добош Н. М., Сорока О. П. Впровадження фінансових технологій — стратегічний напрям розвитку банків. *Ефективна економіка*. 2020. № 12. URL : <http://www.economy.nayka.com.ua/?op=1&z=8479> (дата звернення: 13.10.2021).
3. Рапута К. О. Напрями вдосконалення механізму венчурного фінансування стартапів в Україні. *Інвестиції: практика та досвід*. 2021. № 2. С. 56—63.
4. Савченко Т. Г., Татарко А. В. Поточні тренди розвитку фінансових технологій. *Вісник Сумського державного університету. Економіка*. 2018. № 4. С. 56—64.
5. Шевченко О. М. Світові тенденції розвитку ринку фінансових технологій та особливості його функціонування в Україні. *Ефективна економіка*. 2021. № 6. URL : <http://www.economy.nayka.com.ua/?op=1&z=8976> (дата звернення: 13.10.2021).
6. Allen F., Gu X., Jagtiani J. A. A survey of fintech research and policy discussion. *FRB of Philadelphia Working Paper*. 2020.
7. Lagna A., Ravishankar M. N. Making the world a better place with fintech research. *Information Systems Journal*. 2021. Vol. 32 (38). URL : <https://onlinelibrary.wiley.com/doi/10.1111/isj.12333> (date of access: 13.10.2021).

8. Li B., Xu Z. S. Insights into financial technology (fintech): a bibliometric and visual study. *Financial innovation*. 2021. Vol. 7 (1).
9. Ryu H.-S., Ko K. S. Sustainable development of fintech: focused on uncertainty and perceived quality issues. *Sustainability*. 2020. Vol. 12 (18).
10. Wójcik D. Financial geography I: exploring fintech — maps and concepts. *Progress in Human Geography*. 2020. Vol. 45. № 3. P. 566—576.
11. The Pulse of Fintech H1'21 / KPMG. 2021. URL : <https://assets.kpmg/content/dam/kpmg/xx/pdf/2021/08/pulse-of-fintech-h1.pdf> (date of access: 13.10.2021).
12. Стратегія розвитку фінтеху в Україні до 2025 року / Національний банк України. URL : <https://bank.gov.ua/ua/about/develop-strategy/fintech2025> (дата звернення: 13.10.2021).
13. Dealbook of Ukraine: 2021 edition / AVentures Capital. 2021. URL : [https://www.slideshare.net/YevgenSysoyev/dealbook-of-ukraine-2021-edition?fbclid=IwAR1ofO8jjP-ZRj-66WAg\\_0Z0hzglpREWIp3cb7uCHIj9ZUsoLRxHBmhURng](https://www.slideshare.net/YevgenSysoyev/dealbook-of-ukraine-2021-edition?fbclid=IwAR1ofO8jjP-ZRj-66WAg_0Z0hzglpREWIp3cb7uCHIj9ZUsoLRxHBmhURng) (date of access: 13.10.2021).

Статтю рекомендовано до друку 18.11.2021

© Бондаренко Л. П., Мороз Н. В., Желізняк Р. Й., Бонецький О. О.

#### References

1. Ukrainska asotsiatsiia fintekh ta innovatsiinykh kompanii. (2020). *Kataloh fintekh-kompanii Ukrainy 2020 [Catalog of fintech companies of Ukraine 2020]*. Retrieved October 13, 2021, from <https://fintechua.org/market-map> [in Ukrainian].
2. Kloba, L. H., Dobosh, N. M., & Soroka, O. P. (2020). Vprovadzhennia finansovykh tekhnolohii – stratehichniy napriam rozvytku bankiv [Introduction of financial technologies — a strategic direction of development of banks.]. *Efektivna ekonomika*, 12. Retrieved October 13, 2021, from <http://www.economy.nayka.com.ua/?op=1&z=8479> [in Ukrainian].
3. Raputa, K. O. (2021). Napriamy vdoshkonalennia mekhanizmu venchurnoho finansuvannia startapiv v Ukraini [Directions for improving the mechanism of venture financing of startups in Ukraine]. *Investytsii: praktyka ta dosvid — Investments: practice and experience*, 2, 56—63 [in Ukrainian].
4. Savchenko, T. H., & Tatarko, A. V. (2018). Potochni trendy rozvytku finansovykh tekhnolohii [Current trends in financial technology]. *Visnyk Sumskoho derzhavnoho universytetu. Ekonomika — Bulletin of Sumy State University. Economy*, 4, 56—64 [in Ukrainian].
5. Shevchenko, O. (2021). Svitovi tendentsii rozvytku rynku finansovykh tekhnolohii ta osoblyvosti yoho funktsionuvannia v Ukraini [World trends in the market of financial technologies and features of its operation in Ukraine]. *Efektivna ekonomika*, 6. Retrieved October 13, 2021, from <http://www.economy.nayka.com.ua/?op=1&z=8976> [in Ukrainian].
6. Allen, F., Gu, X., & Jagtiani, J. A. (2020). A survey of fintech research and policy discussion. *FRB of Philadelphia Working Paper*. <http://dx.doi.org/10.21799/frbp.wp.2020.21>.
7. Lagna, A., & Ravishankar, M. N. (2021). Making the world a better place with fintech research. *Information Systems Journal*, 32 (38). Retrieved October 13, 2021, from <https://onlinelibrary.wiley.com/doi/10.1111/isj.12333>.
8. Li, B., & Xu, Z. S. (2021). Insights into financial technology (fintech): a bibliometric and visual study. *Financial innovation*, 7 (1). <https://doi.org/10.1186/s40854-021-00285-7>.
9. Ryu, H.-S., & Ko, K. S. (2020). Sustainable development of fintech: focused on uncertainty and perceived quality issues. *Sustainability*, 12 (18). <https://doi.org/10.3390/su12187669>.
10. Wójcik, D. (2020). Financial geography I: exploring fintech — maps and concepts. *Progress in Human Geography*, 45 (3), 566—576.
11. KPMG. (2021). The Pulse of Fintech H1'21. Retrieved October 13, 2021, from <https://assets.kpmg/content/dam/kpmg/xx/pdf/2021/08/pulse-of-fintech-h1.pdf>.
12. Natsionalnyi bank Ukrainy. (2020). *Stratehiia rozvytku fintekhu v Ukraini do 2025 roku [Strategy for the development of fintech in Ukraine until 2025]*. Retrieved October 13, 2021, from <https://bank.gov.ua/ua/about/develop-strategy/fintech2025> [in Ukrainian].
13. AVentures Capital. (2021). Dealbook of Ukraine: 2021 edition. Retrieved October 13, 2021, from [https://www.slideshare.net/YevgenSysoyev/dealbook-of-ukraine-2021-edition?fbclid=IwAR1ofO8jjP-ZRj-66WAg\\_0Z0hzglpREWIp3cb7uCHIj9ZUsoLRxHBmhURng](https://www.slideshare.net/YevgenSysoyev/dealbook-of-ukraine-2021-edition?fbclid=IwAR1ofO8jjP-ZRj-66WAg_0Z0hzglpREWIp3cb7uCHIj9ZUsoLRxHBmhURng).

The article is recommended for printing 18.11.2021

© Bondarenko L., Moroz N., Zhelizniak R., Bonetskyi O.