

“The opportunities of engaging FinTech companies into the system of cross-border money transfers in Ukraine”

AUTHORS

Yuriy Petrushenko  <https://orcid.org/0000-0001-9902-7577>
 <https://www.webofscience.com/wos/author/record/C-1072-2018>
Liudmyla Kozarezenko  <https://orcid.org/0000-0002-1349-6805>
 <http://www.researcherid.com/rid/C-4531-2018>
Aldona Glinska-Newes  <https://orcid.org/0000-0002-5415-1563>
 <http://www.researcherid.com/rid/H-7110-2018>
Maryna Tokarenko  <https://orcid.org/0000-0001-8181-7394>
 <http://www.researcherid.com/rid/X-5455-2018>
Maryna But  <https://orcid.org/0000-0001-9120-214X>
 <http://www.researcherid.com/rid/X-5703-2018>

ARTICLE INFO

Yuriy Petrushenko, Liudmyla Kozarezenko, Aldona Glinska-Newes, Maryna Tokarenko and Maryna But (2018). The opportunities of engaging FinTech companies into the system of cross-border money transfers in Ukraine. *Investment Management and Financial Innovations*, 15(4), 332-344. doi:10.21511/imfi.15(4).2018.27

DOI [http://dx.doi.org/10.21511/imfi.15\(4\).2018.27](http://dx.doi.org/10.21511/imfi.15(4).2018.27)

RELEASED ON Tuesday, 18 December 2018

RECEIVED ON Tuesday, 23 October 2018

ACCEPTED ON Monday, 03 December 2018

LICENSE



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

JOURNAL "Investment Management and Financial Innovations"

ISSN PRINT 1727-7051

ISSN ONLINE 1810-5467

PUBLISHER LLC “Consulting Publishing Company “Business Perspectives”

FOUNDER LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

34



NUMBER OF FIGURES

5



NUMBER OF TABLES

4

© The author(s) 2025. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10, Sumy,
40022, Ukraine

www.businessperspectives.org

Received on: 23rd of October, 2018

Accepted on: 3rd of December, 2018

© Yuriy Petrushenko, Liudmyla
Kozarezenko, Aldona Glinska-Newes,
Maryna Tokarenko, Maryna But, 2018

Yuriy Petrushenko, Doctor of
Economics, Professor, Head of the
Chair of International Economics,
Education and Research Institute for
Business Technologies "UAB", Sumy
State University, Ukraine.

Liudmyla Kozarezenko, Doctor of
Economics, Professor, Department of
Finance, Kyiv National University of
Trade and Economics, Ukraine.

Aldona Glinska-Newes, Ph.D. in
Economics, Professor, Department
of Organizational Behavior and
Marketing, Nicolaus Copernicus
University, Poland.

Maryna Tokarenko, Postgraduate
Student, Education and Research
Institute for Business Technologies
"UAB", Sumy State University,
Ukraine.

Maryna But, Master Course Student
(International Economic Relations),
Education and Research Institute for
Business Technologies "UAB", Sumy
State University, Ukraine.



This is an Open Access article,
distributed under the terms of the
[Creative Commons Attribution 4.0
International license](https://creativecommons.org/licenses/by/4.0/), which permits
unrestricted re-use, distribution,
and reproduction in any medium,
provided the original work is properly
cited.

Yuriy Petrushenko (Ukraine), Liudmyla Kozarezenko (Ukraine),
Aldona Glinska-Newes (Poland), Maryna Tokarenko (Ukraine), Maryna But (Ukraine)

THE OPPORTUNITIES OF ENGAGING FINTECH COMPANIES INTO THE SYSTEM OF CROSS-BORDER MONEY TRANSFERS IN UKRAINE

Abstract

Despite the increasing role of cross-border payments within the globalization processes and rapid growth of venture sector, an issue of its implementation remains to be a debatable point for many countries. The paper identifies disruptive challenges for financial institutions need to adapt. The research investigates the value and the investment flows structure as most obvious indicators of FinTech and describes types of payments relationships there. The paper considers relationships between enterprises, financial institutions and individuals, which are formed in digital payments. To understand the difference between regular cross-border money transfers and P2P cross-border money transfers with TransferWise, both mechanisms were researched and the benefits underlined. For Ukraine, the improvement of existing cross-border payments system with FinTech is a crucial challenge. That is why it is important to focus on providing knowledge for people, supporting start-ups in the sector and learning the best implementation practices. A great example of cross-border payments of FinTech in Ukraine is TransferWise. The difference between regular cross-border money transfers and peer-to-peer (P2P) money transfers appears in its benefits, such as lower and more expectable transfer fee, mid-market exchange rate, less transaction period. By transforming existing cost structures and mitigating market imperfections, they provide innovative services that meet the users' needs for speed, trust, low cost, usability, security and transparency. The results show high potential of FinTech for cross-border payment processing.

Keywords

financial sphere, financial services, digital economy,
venture, financial technologies, financial innovations,
start-up, payment methods

JEL Classification G24, M13, O39

INTRODUCTION

Ukraine is the country where citizens experience problems with processing cross-border transactions. The roots of these problems are located in the market regulation and in the presence of significant shadow segment here. The most problematic constrains for the cross-border payment processing in Ukraine are different restrictions for currency transfers from abroad to Ukrainian accounts.

Today the sector of payment systems and remittances in Ukraine is represented both by domestic and foreign players: Visa, MasterCard and American Express, UkrKart, Postal Transfers, Aval Express, Welsend, PrivatMoney and others. Despite this fact, there is a very small number of innovative participants (with a strong technological base), which are able to provide effective service and compete with existing players. That is why the in-depth study of the technological perspectives in this sector is very important nowadays.

High potential of transformation processes taking place within the international market of information financial services stipulates high topicality of the scientific development of theoretical basis and practical implementation of the financial innovations in the financial market. Emergence of new technologies, financial crisis of 2008 and high demand for digital services gave rise to development of new FinTech companies. Currently, FinTech appeals to both the software engineers and financial market players, which are ready to implement the innovative solutions. According to LTP MEDICI database, over 10,000 FinTech companies are operating globally today in various fields, in particular: payments, lending, investment, crowdfunding, security and customer identification, Big Data analysis, Insuretech, artificial intelligence and block-chain solutions. According to “Fintech in Ukraine” catalogue, 80 FinTech companies are incorporated in Ukraine, the majority of which are engaged in payments. The largest volume of global FinTech investments was in the payment segment (17%), lending segment (31%) and banking technologies segment (10%). Over the recent years, the system of internal payments went through considerable transformation; and similar processes are currently taking place in the international payment system. Non-efficiency of cross-border payments is proved with long-lasting and uncertain terms of money transfers, inadequate transparency of expenses, considerable costs of transfer and conversion, uncertainty of exchange rates due to various processing terms of the correspondent banks per day, possible withholding of transaction fees from the principal amount, delay and accumulation of fees as a result of a large number of intermediary banks, problems of liquidity risk management by the financial institutions, etc. Such issues could be solved with FinTech, thus giving great opportunities to the new market players for innovative services supply.

1. LITERATURE REVIEW

The term “FinTech” has been widely used in business journals recently to designate challenges for the financial services, which should change the focus under the impact of innovations brought to the financial sector for the purposes of simplicity, speed, cheapness and human-centricity. The lack of academic background gave rise to numerous debates on the definition of “FinTech”. Different authors have dedicated their works to this issue.

Arner, Barberis, and Buckley (2015) were some of the first scientists to explain the evolution of FinTech and considered FinTech to be intersectoral and not to be limited by some specific business model or company size. At the same time, Kim, Park, and Choi (2016) referred FinTech to be mobile-centre IT service sector which aims to enhance the efficiency of finance practices.

The common issue for all points of view is that FinTech refers to institutions that develop financial services through the use of information technology. Varga (2018) tried to make the conceptual overview of the key value drivers behind FinTech. He claimed that FinTech refers to not fully regulated ventures made to develop technology-related financial services with a value-added design that will transform current financial practices.

The deepest and up-to-date study was done by IMF experts (He et al., 2018). In this discussion note, technologies in cross-border payments are considered from the different aspects. Also it is worth to admit the study of PYMNTS.com (2017) where the cross-border payments of FinTech are at “gunpoint”. This research evaluates and ranks the FinTechs based on key attributes.

Theoretical and methodological background, trends, directions and perspectives of FinTech development became the sphere of interest for some Ukrainian scholars. Zherdetska and Horodunskyi (2017) in their paper defined that one of the most meaningful factor moving banking practices is financial technology development and growth of FinTech firms. Tarasyuk and Koscheyev (2017) provided an analysis of existing trends in global digital financial sphere. The complex research of Ukrainian FinTech market was made by USAID Project and UNIT.City. In their report “FinTech in Ukraine” (2018), the scholars investigated the main FinTech trends in Ukraine, analyzed Ukrainian ecosystem of FinTech and defined the main players of FinTech market.

The research made by Park (2006) presents the general overview of cross-border payments and focuses on existing challenges and inefficiencies.

Other authors, like McDermott (2016), Khalil (2017) investigate technologies for implementation in order of payments development. Such papers as Price (2015), Groenfeldt (2017) research the narrowly focused topics dedicated to the cross-border payments.

The paper (Dong et al., 2017) reviews development of FinTech and focuses on rapidly changing cross-border payments to promote the stability of the international monetary system. The authors show the ability of FinTech to respond to consumer needs for trust, security, privacy, better services, and change the competitive landscape. The working paper (Barr et al., 2018) focuses on global standards that apply to cross-border payments. They have concluded that there is a significant opportunity to archive efficiency, consumer empowerment, safety and soundness, one the one hand, and anti-money laundering and anti-terrorist financing goals, on the other hand. Ravishankar (2018) defines the benefits of using blockchain in cross-border money transfer.

Despite high interest in this topic, the theoretical and methodological basics of using FinTech precisely in the cross-border payments still remains a controversial issue.

2. AIMS

The aim of the research is to investigate the prospects of FinTech engagement into the system of international transfers processing in Ukraine. Achievement of this goal includes conducting a comparative analysis of the regular and innovative cross-border payment processes, developing a methodology for evaluating the impact of FinTech engagement into the system of cross-border payments in Ukraine, and investing foreign experience of FinTech start-ups participation in the international money transfers system.

3. METHODS

Assuming that in the regular cross-border payment transfer, banks collect service fees and rate spread, we can calculate the costs of the transactions (cost 1, 2) as:

$$cost_1 = a + b,$$

$$cost_2 = c + d.$$

Banks establish their own exchange rates in every transaction $exc_{1,2}$.

The transfer amount X_f that the end recipient supposes to get in the regular transfer from Country 1 to Country 2 can be calculated as follows:

$$X_f = exc_1 \cdot (X - (a + b)),$$

from Country 2 to Country 1:

$$Y_f = exc_2 \cdot (Y - (c + d)).$$

Assuming that in the P2P cross-border money transfer scheme, TransferWise collects only 0.4% service fee per transaction and uses the mid-market exchange rate between currencies exc , we can calculate the amount for the end recipient in transfer from Country 1 to Country 2 as follows:

$$X_{tw} = exc \cdot (X - 0.004X) = exc \cdot 0.996X,$$

from Country 2 to Country 1:

$$Y_{tw} = exc \cdot (Y - 0.004Y) = exc \cdot 0.996Y.$$

In most cases: $cost_{1,2} > 0.4\%$, $exc_{1,2} < exc$.

So, the following imparity holds for the transfers from Country 1 to Country 2:

$$exc \cdot 0.996X > exc_1 \cdot (X - (a + b)),$$

$$X_{tw} > X_f.$$

For the transfer from Country 2 to Country 1:

$$exc \cdot 0.996Y > exc_2 \cdot (Y - (c + d)),$$

$$Y_{tw} > Y_f.$$

However, the methodology of research consists of structural and statistical analysis of the database based on PwC's Report, World Fintech Report, KPMG FinTech Research, CS Insight data, FinTech50 Yearbook 2017, PYMNTS.com.

4. RESULTS

Last years were marked by geopolitical turmoil, polarizing political proceedings, building isolationist sentiments around the globe and continued escalation of conflicts in different corners of the world. With all these backgrounds, life goes on for the majority of consumers. Technologies have put consumers in the driver's seat and all the time their ability to control their commerce and banking experiences is growing.

As it has been mentioned in the PwC's research about the future of the FinTech, new digital technologies will definitely reshape the proposition of existing financial services. And such sectors like consumer banking and payments will be the most exposed and disrupting in the nearest future, followed by insurance and asset management.

Significant global changes have already been disrupting in the payments sector. At the same time, financial technologies are developed enough to determine how, when and where payments will be conducted and also who will process them. This development is explored and leveraged every year. As it was mentioned in multiple reports, today FinTech shapes the course of the whole payment industry (Hardie, Wood, & Gee, 2016). Within the next few years, the FinTech is set to prevail in the sector and banks should adapt and take into consideration FinTech fueled changes.

Among such disrupters we should assume the most important ones for payment industry:

1. Rapid development of neo-banks. Neo-banks are the institutions that provide prepaid debit cards, checking and some form of savings accounts without the traditional physical building. It usually includes features like mobile deposits, P2P payments, mobile budgeting tools and real-time digital receipts.
2. Artificial Intelligence in financial sector. Artificial Intelligence (AI) enables to speed up digitization initiatives of every financial institution and provides customized products and services. AI is being applied mainly toward customer relationship management, identity authentication, compliance, risk control and other operational aspects.
3. Emergence of RegTech and Insurtech. These kinds of technologies are the most disruptive trends in FinTech environment. RegTech is the use of innovative technologies to improve the delivery and compliance of regulations, it supports innovations by market integrity gain, helping regulators protect consumers and promoting competition. RegTech is about to reduce the costs of gaining compliance to regulations (Gulamhuseinwala, Roy, Viljoen, 2017). InsurTech is the insurance-specific branch of FinTech, which is emerging as a game-changing opportunity for insurers to improve the relevance of their offerings, innovate and grow. InsurTech has seen funding almost in line with FinTech investment overall and it is expected to increase as new players and investors are entering the space (Aite Group, 2017).

Source: Created by the authors based on data from PwC's Report.

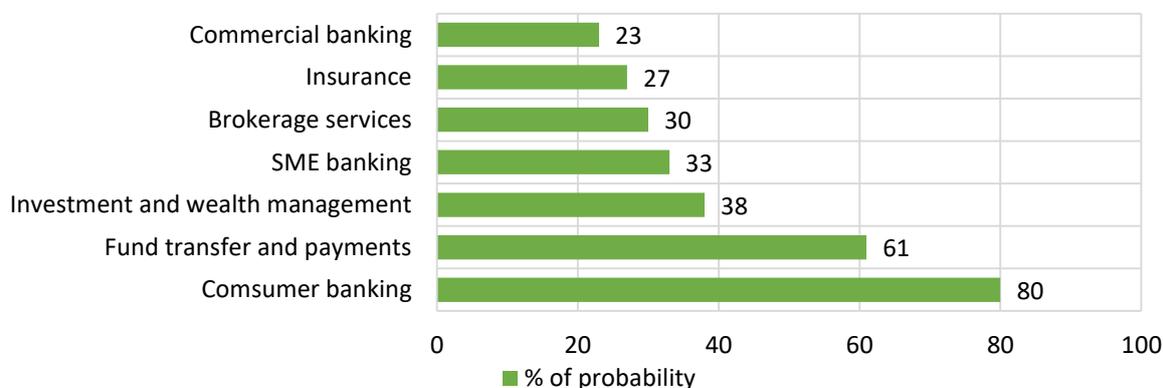


Figure 1. The probability of the global financial sectors (in %) to be disrupted by FinTech over 2018–2022

4. Regulation strengthening in the FinTech sector. The development of the regulation rules is an important part of engaging FinTech into the payment system. One of the most significant steps was the development of PSD2 (Payment Services Directive), where new payment service categories were introduced. Taking into account pending PSD2 regulation in Europe, a lot of FinTech had to adopt some kinds of PSD2 compliance elements such as: registration/authorization process for payments providers in initiation and account information services; fraud controls; strong customer authentication; incident notification; detailed statements; reduced time for complaints handling; restrictions on surcharges; reduced cap on liability for unauthorized transactions.
 5. Importance of Banking-as-a-Platform (BaaP). BaaP is a structure where FinTech firms and banks pool their resources to collaborate. The emerging ecosystem of Bank-FinTech cooperation's and partnerships has paved the way for the opening of banks' APIs. Open APIs allow banks to make their products and services integrate with third-party applications to provide customers a variety of innovative products or services (Chandrashekar, Kumar, & Saxena, 2017). Banking-as-a-Platform is a fairly valuable ecosystem. With the development of BaaP, the provisioning of every product or service, which a customer may need, becomes not necessary for a bank. Banking-as-a-Platform acts here as the channel of providing such products by another party (e.g. FinTech). The platform is more about cooperation between the bank and FinTech, rather than about competition.
 6. Emerging of blockchain-as-a-service. Blockchain technology has numerous applications in the financial services: enhanced transfers of digital assets, identity management, better reward and loyalty solutions; also, it is used in notarization services and letter of credit processing in banking. It enables payment authorization and clearing in payments; automation of claims processing and P2P insurance and, what is the most important, using in cross-border payments (Chandrashekar, Kumar, & Saxena, 2017).
 7. Increasing number of FinTech hubs and different cooperation centres.
- In the world of financial services, a lot of “technological giants” launched strategically positioned cooperation for researching, developing and integrating FinTech (especially – blockchain-based) applications into real-world financial processes. It has led to exploring a number of ways to collaborate with FinTech (BNY Mellon, 2015), including:
- venture capital investments (Santander's Innoventures; a US\$ 100 million FinTech venture capital fund; HSBC's US\$200 million fund; Sberbank's SBT Venture Capital – a US\$100 million fund);
 - accelerator/incubator programs (The FinTech Innovation Lab; The Barclays Accelerator Programme; The Plug and Play Fintech Programme; Level39; Blockchain Innovation Lab);
 - close collaboration with the FinTech (mergers and acquisitions).
- All these trends were introduced because of the crucial demand of implementing the new technologies into world financial sector. In its recent research, Capgemini, LinkedIn, and Efma (2017) estimates the effectiveness of such implementation for traditional firms and FinTech.
- Capgemini (2017) analyzes the positive customer experiences using moments of trust (interactions between customer and financial institutions, which form or change customer impressions about the last ones). Thus, the main popular general moments of truth for FinTech industry according to quiz are transparent fee structure, quick account opening, ability to update account details digitally, anytime/anywhere access to aggregated information about all financial accounts/products, real-time updates on problem resolution timeline. Payments are one of the most “demandable” subsectors. Main customers' wishes here are the following: transferring money digitally, remotely digital or contactless payment, alerts for exceeding monthly expenditures, digitally control cards, ability to place, cancel or modify standing instructions from mobile app. Researching positive customer experiences at this points helps financial institution to raise the effec-

tiveness of provided services. Thus, according to the data of Capgemini, LinkedIn, and Efma (2017) research, both traditional firms and FinTech first of all should deliver better moments of truth experiences in cases identified by the customer as the most important. For example, the most important moment of truth for customer (transparent fee) indicator of positive experiences is just near 30% for traditional firms and even lower for FinTech.

Investment flows are the most obvious indicators of the FinTech industry development. This industry is still too sensitive to different risks. For example, significant amount of uncertainty that plagued the broader investment market caused the decline of global investments in Fintech from US\$ 46.7 billion to US\$ 24.7 billion in 2015–2016:

- ramification of the Brexit;
- the US president election;
- perceiver slowdown in China;
- significant exchange rate fluctuations.

Blockchain appears to be the most growing sphere of FinTech investments inflows (Figure 2). Funding in blockchain sector has boomed recent years (2013–2016), as products have matured and potentially use cases have emerged (Figure 3).

Blockchain in most cases is regarded as the technology that powers up the virtual bitcoin currency. However, nowadays blockchain applications have left cryptocurrencies far behind. It offers a high degree of transparency, broad process automation and faster settlement time. The biggest IT, financial and consulting companies, e.g. Microsoft, EY, KPMG and Deloitte, increased their activity in the blockchain area by providing services for consulting, developing, testing and deploying blockchain applications for different (especially, financial) companies (Deloitte, 2016).

It is important to mention that nowadays digital payments play a significant role in business processes worldwide. The participants here include enterprises, financial institutions and individuals. Their relationships in most cases can be identified by the following payments:

- P2P abbreviation of “peer-to-peer” that means person to person. It is a pure online business that matches different offers. The biggest advantage of P2P payments is a full usage of free money. However, now the biggest weakness of this mode is high rate of risk and lack of insurance.
- O2O is a term for “online to offline”. It means the connection of traditional business via online platforms. Here users can select product or service and do online transactions. The core of O2O is online payments.

Source: Created by the authors based on data from KPMG FinTech Research for Q4 2016.

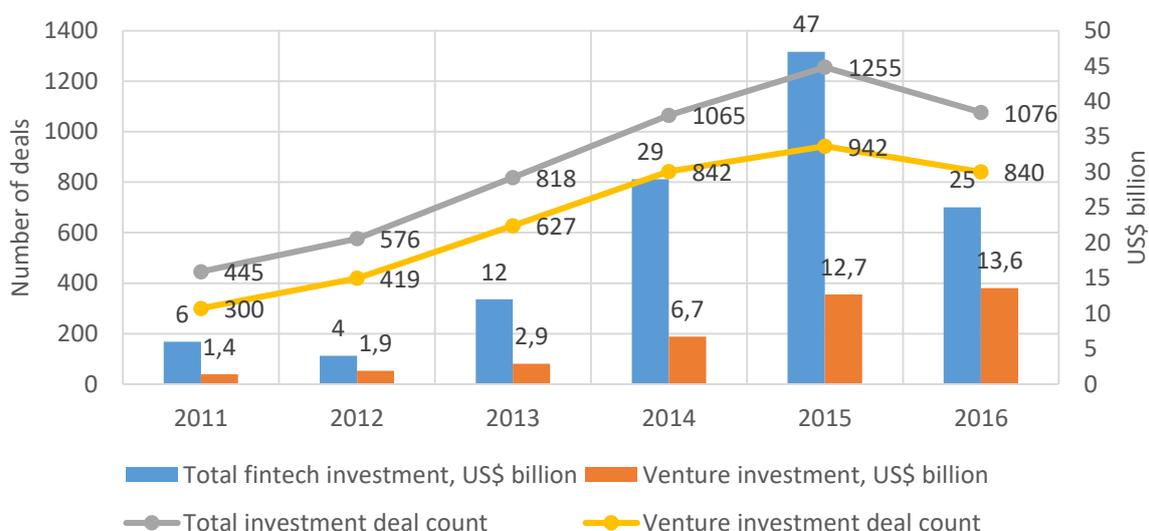


Figure 2. Total and venture investments into global FinTech sector in 2011–2016

Source: Created by the authors based on data from KPMG FinTech Research for Q4 2016.



Figure 3. Investments in global blockchain FinTechs, US\$ million

- B2C means “business-to-customer”. Under this payment mode companies connect with final customers directly.
- B2B is an abbreviation for “business-to-business”. It means transactions among enterprises. B2B has a long history of development and now is the most powerful sector of the world payments system (Lu, 2015).

Global digital P2P payments industry today is on the way of rapid development, caused by a number of key factors. McDermott (2016) names some of them. Firstly, consumers prefer omni-channel solutions for processing and managing payments (well-ordered and all-in-one board, which is not affiliated with location or device). Secondly, they want advanced security and supplementary services, which provide more than just basic enhancement. It could be achieved with the use of biometrics and tokenization technologies, which are the most disruptive trends in enabling payments’ security and convenience (McDermott, 2016).

New technologies and rapid digitization embed a new concept in the “art of possible” in payments, spreading multiple devices, digital wallets and supporting infrastructure. Payments processes become simple and invisible. The significant appeal of FinTech could be explained by their ability to offer different new business solutions, deliver personalized customer experience and digitalize end-to-end business models. That is why FinTech for payments processing, including digital wallets, person-to-person (P2P) payments, integrated point-of-sale systems and cross-border transfers, are disrupting the path of industry development.

Table 1. The most successful FinTech in payment sector

Source: Composed by the authors based on CS Insight data.

No.	Name	Funding	Description
1	Square	US\$ 960 million	Facilitates transactions between buyers and sellers with its free credit card reader for the iPhone, iPad, and Android devices, allowing anyone to accept credit cards anywhere
2	Stripe	US\$ 717 million	Online payment system company that gives online merchants the ability to accept credit card payments
3	PayPal	US\$ 317 million	Aims to allow anyone to pay in any way they prefer, including through credit cards, bank accounts, buyer credit or account balances, without sharing financial information
4	iZettle	US\$ 240 million	Tool to take payments, register, track sales and get funding
5	Obopay	US\$ 145 million	Offers application that lets customers get, send and spend money from mobile phones
6	WePay	US\$ 74.2 million	Payment tool that allows users to instantly create accounts for anything
7	BrainTree	US\$ 70 million	Payment platform for online and mobile businesses, offering all the tools merchants need to accept payments

Every year, since 2012, the best representatives of European FinTech environment are evaluated in the FinTech50 – a list of 50 European FinTech, which transform financial services across different sectors and on all stages: from start-up to high growth (FintechCity, 2017). The FinTech50 is the first competition worldwide to evaluate FinTech for innovativeness rather than profitability. This year only 5 of 50 best FinTech have been identified in payments sector.

Table 2. New promising European FinTech in payments

Source: Created by the authors based on data from FinTech50 Yearbook 2017.

No.	Name	Funding	Headquarters	Description
1	Azimo	US\$ 46.59 million	London	Online social money transfer service
2	Curve	US\$ 13 million	London	Combine all banking services in one app
3	PayKey	US\$ 12 million	Tel Aviv	Allows to transfer money using social networks
4	SETL	US\$ 39 million	London	Multi-currency institutional payments, based on blockchain technology
5	Traxpay	US\$ 19 million	Frankfurt	Complete payment solutions for B2B transactions

Establishment of the instant cross-border payments is one of the tasks, which are to be resolved in Europe. The Euro Retail Payments Board (ERPB) together with the European Payments Council have already started the implementation of a scheme for instant payments in euro (European Payments Council, 2015). Harmonization of real-time payments will take place within the SEPA zone (the Single Euro Payments Area is an initiative of the European Union in payment integration for simplification of bank transfers in euro). SEPA consists of the 28 member states of the European Union.

In January 2017, the Governing Council of the European Central Bank decided to establish a new service for processing instant payments. This new service, named TARGET instant payment settlement (TIPS), is aimed to enable citizens and businesses to transfer money in real time at any time of the year and day (European Central Bank, 2017).

By establishing TIPS, the ECB wants to meet the demand for instant payments in Europe and facilitate the payment integration in eurozone. This service will be settled in cooperation with the European banking system.

Cross-border payments processing is still too expensive and complex nowadays. Furthermore, such payments are not transparent enough in most cases, because its real price and execution time cannot be identified precisely. In addition, cross-border transfers are quite slow. The problem is that they can be forwarded from bank to bank before they reach the place. It causes time delays and additional expenses for the final receiver. Settlement period of processing cross-border payment can take up to five days even in the most common currency pairings.

Final users feel the lack of knowledge and technologies for transferring funds directly and that

is why it always causes information asymmetry. Financial institutions (intermediaries) sometimes address such asymmetry as their ownership of special know-how. In this case, they are able to verify the real availability of funds and use it for their own benefit.

In order to introduce the technologies and startups, which are “at the peak” in the cross-border payments industry, the platform PYMNTS.com issues its yearly research “The X-Border Payments Optimization Tracker”. This research identifies leading cross-border payment services providers (FinTechs), based on key attributes, which are important to serving the needs of cross-border payments facilitators. Scoring includes:

- risk/compliance services: tax burden, tax and export compliance, merchant of record;
- geographies: currencies and languages, regions served, and office locations;
- payment methods: digital wallets, payment methods, account-on-file, recurring billing and acquirer services;
- omnichannel: number of operating systems supported, mobile and tablet POS;
- developer toolkits: APIs, programming languages, eCommerce plugins, account updater services, shopping carts;
- fraud tools: 3D Secure, PCI compliance, tokenization, address verification services, proxy piercing, transaction scoring, order linking, end-to-end encryption, IP geolocation, device fingerprinting, chargeback automation, velocity checks.

Table 3. The ranking of the most successful FinTech in cross-border payments

Source: PYMNTS.com

Rank	FinTech	Score
1	IngenicoPayments	84
2	ACI Payment System	81
3	Worldpay	78
4	Digital River	75
5	BlueSnap	69
6	PayU	66
7	CHASE Paymentech	57
8	First Data	57
9	Paysafe	55
10	CyberSource	55
11	Pithey Bowes	54
12	Adyen	54
13	Vantiv	53
14	Hyperwallet	48
15	Gate2Payments	46
16	CNG	45
17	AllPago	44
18	Paymentwall	44
19	Linkpay	44
20	Bitpay	44

Different researches show the presence of a large number of FinTech for cross-border transfers processing in modern payments sector. Some of the FinTech provide more security or allow covering wider geography; the others provide omni-channel solutions, etc. However, only the most efficient

and complex ones become global brands. A great example here is London-based (Estonian developed) FinTech TransferWise. It is one of the biggest FinTech start-ups in cross-border payments sector nowadays.

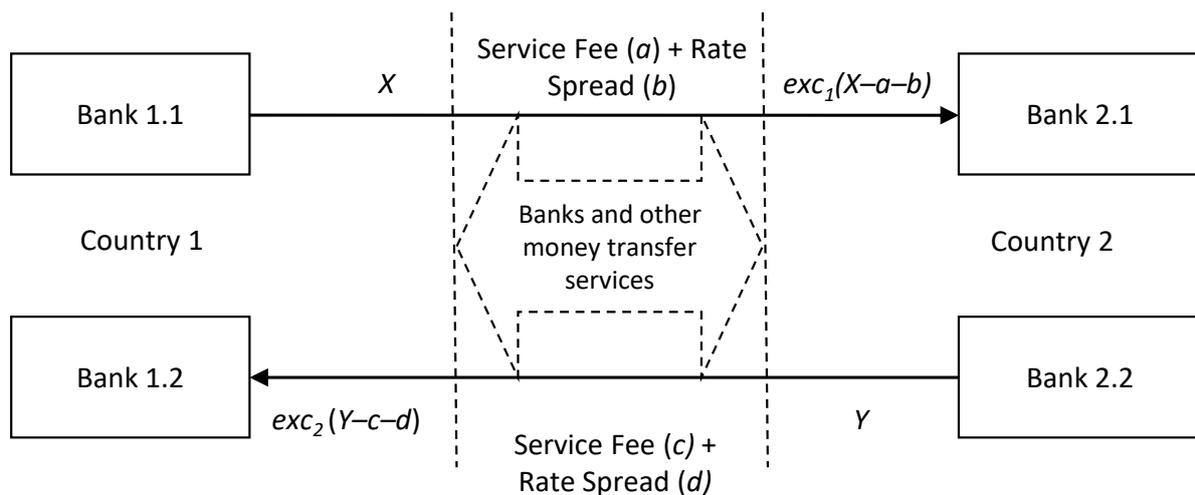
We chose TransferWise for detailed analysis, because it has unique payments facilitation process. It helps to transfer money not just sending them directly to the recipient, but redirecting those amounts to the other recipient who are waiting for the money going in the opposite direction. In the end, the final recipient receives the transfer not from the originator, but from the addressee of the equivalent transfer in the same country. TransferWise transferring process allows to avoid currency conversion and bordering crossing (Price, 2015).

TransferWise is a great example to understand the difference between regular cross-border money transfers and peer-to-peer (P2P) money transfers (Figure 4, Figure 5).

Some differences in regular cross-border transfer and money transfer with TransferWise are presented in Table 4.

It is important to admit that TransferWise is available in Ukraine. This fact indicates the development of the cross-border payments FinTech in

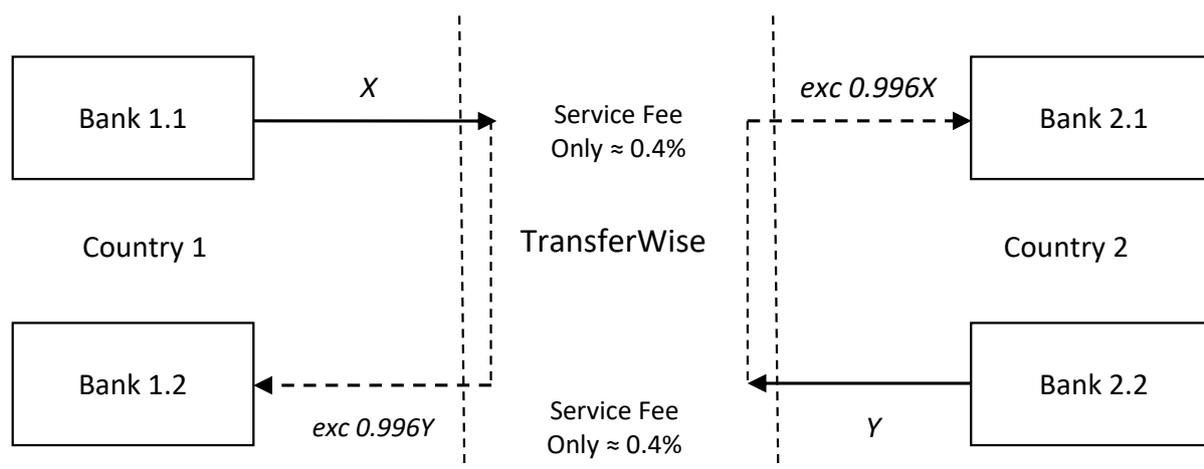
Source: Composed by the authors based on transferwise.com



Note: X – amount of money transferred from Country 1 to Country 2; Y – amount of money transferred from Country 2 to Country 1; a, c – service fee; b, d – rate spread; $exc_{1,2}$ – exchange rates between currencies (Country 1 and Country 2) set by the banks.

Figure 4. Regular cross-border payment transfer

Source: Composed by the authors.



Note: X – amount of money transferred from Country 1 to Country 2; Y – amount of money transferred from Country 2 to Country 1; exc – mid-market exchange rate between currencies of Country 1 and Country 2).

Figure 5. P2P cross-border money transfers with TransferWise

the country. PryvatBank is a Ukrainian partner of TransferWise in enabling money transfers and international payments since 2015 (Pryvatbank, 2015). TransferWise makes money transfers to Ukraine more efficient and less time consuming:

- the transaction takes from 30 minutes to 1 business day;
- the recipient does not pay any commission and can withdraw money in the ATMs;
- customers saved more than 22 million within the system compared to other providers (calculated by PryvatBank);
- TransferWise is supported over 26 currencies, 48 countries and 360 destinations.

These incentives lead us to the conclusion that nowadays people in Ukraine have an opportunity to facilitate their transfers abroad. However, not all the people are aware of such opportunity. The lack of awareness and knowledge about FinTech innovations is one of the biggest problems in Ukraine. The lack of demand generates a lack of sufficient level of technology development in the financial sector.

The use of FinTech in cross-border payments processing in particular could generate a lot of perspectives:

- enhancing the procedures of cross-border payments in an instant way;
- enabling cross-border transfers processing online (e.g. transaction validation);

Table 4. Efficiency comparison of the regular cross-border transfers and transfers with TransferWise

Source: Created by the authors.

Factor	Regular transfers between bank accounts	TransferWise "borderless" account
The average total cost for each transaction	From 2.5% and up (depending on the bank, currency, type and amount of the transaction)	From 0.3% to 1.6% (depending on the currency, type and amount of the transaction)
Exchange rate	Established by the bank	Mid-market exchange rate
Transaction time	Transfers can take few days or weeks to complete	Funds transfers are completed in 24 hours or less
Risks	lack of transaction transparency; different regulatory laws and bank requirements can lead to payments delay or loss	high probability of fraudulent activity; availability is limited; lack of general awareness of such services

- overall IT infrastructure upgrading;
- improving of electronic banking systems (the availability of innovative functions in mobile banking and in the Internet for customers);
- subsequent IT infrastructure investments (e.g. new network parameters requirements, cryptography, etc).

CONCLUSION

FinTech shapes the course of the payments industry development in different ways: by disrupting it with technologies; changing regulatory requirements; integrating financial institutions and start-ups; establishing higher standards for processes, etc. The fund transfer, payments and consumer banking are expected to be the most challenged with innovations.

After conducting a comparative analysis of two different cross-border transfer facilitation ways, we can see that the FinTech scheme (TransferWise example) has several advantages here. First of all, TransferWise uses completely different unique payments facilitation process, which allows transferring money without transferring them in practice.

The abovementioned process results in lower costs per transaction, since TransferWise collects only a single transaction fee. Also, it allows more favorable exchange rate, as the company use mid-market exchange rate for all transactions. In this case, we can calculate the absolute benefit for the end recipient using the TransferWise money transfer system.

In addition, the FinTech cross-border transaction process requires much less time and resources comparing to the similar one in the regular bank scheme.

The paper shows that investments and profits of cross-border payment solution can vary significantly between countries, since each country has separate and diverse national payment systems. FinTech can help to proceed in this direction – enhance the system and allow people to proceed more effectively here. Ukraine represents the countries where the participation of FinTech in payments is limited.

A positive experience in customer moments of truth appears to be an indicator of effectiveness of implementation innovations in financial sector. Both traditional firms and FinTech first of all should enhance moments of truth experiences in the most important for customer cases.

The process of the instant cross-border payments establishment in Europe has already begun. Involving in this process and creating effective environment to gain the benefits and to minimize the risks is an important task for Ukraine. For Ukraine, the improvement of existing cross-border payments system with FinTech is a crucial challenge. That is why it is important to focus on providing knowledge for people, supporting start-ups in the sector and learning the best implementation practices. A great example of cross-border payments of FinTech in Ukraine is TransferWise. The difference between regular cross-border money transfers and peer-to-peer (P2P) money transfers appears in its benefits, such as lower and more expectable transfer fee, mid-market exchange rate, less transaction period.

This article provides the improved interpretation of novelty in the field of FinTech and international payments. The implications of this study for the future research can be found in developing the theoretical basis for attracting the best FinTech to the domestic market. It could be done by researching the ways for increasing in demand among the population (FinTech popularization), developing the appropriate loyalty legislation and providing the opportunities for the development of domestic start-ups.

REFERENCES

1. Aite Group (2017). *Top 10 Trends in Financial Services*. Retrieved December 28, 2017 from https://aitegroup.com/sites/default/files/storage_0/20170105_Top%2010%20Trends%20in%20Financial%20Services%202017.pdf
2. Arner, D. W., Barberis, J. N., & Buckley, R. P. (2015). The Evolution of Fintech: A New PostCrisis Paradigm?
3. Barr, M., Klifford, K., & Klein, A. (2018). *The Brookings Institution*. Retrieved September 3, 2018 from https://www.brookings.edu/wp-content/uploads/2018/04/es_20180413_fintech_access.pdf
4. BNY Mellon (2015). *Innovation in Payments: The Future is Fintech*. Retrieved January 3, 2018 from https://www.bnymellon.com/_global-assets/pdf/our-thinking/innovation-in-payments-the-future-is-fintech.pdf
5. Capgemini, LinkedIn, & Efma (2017). *World Fintech Report*. Retrieved January 3, 2018 from <https://www.capgemini.com/service/introducing-the-world-fintech-report-2017>
6. Chandrashekar, A., Kumar, A., & Saxena, A. (2017). *Top 10 Trends in Banking*. Retrieved December 23, 2017 from https://www.capgemini.com/wp-content/uploads/2017/07/banking_trends_2017_web_version.pdf
7. Deloitte (2016). *Blockchain services and solutions. Comprehensive offerings to guide your blockchain journey*. Retrieved January 6, 2018 from <https://www2.deloitte.com/us/en/pages/consulting/solutions/blockchain-solutions-and-services.html>
8. Dong, H., Leckow, R., Haksar, V., Mancini-Griffoli, T., Jenkinson, N., Kashima, M., Khiaonarong, T., Rochon, C., & Tourpe, H. (2017). *Fintech and Financial Services: Initial Considerations*. Retrieved October 23, 2018 from <https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2017/06/16/Fintech-and-Financial-Services-Initial-Considerations-44985>
9. European Central Bank (2018). *ECB to develop a service for the settlement of instant payments – Press release from 22 June 2017*. Retrieved January 5, 2018 from <https://www.ecb.europa.eu/press/pr/date/2017/html/ecb.pr170622.en.html>
10. European Commission (2017). *Payment services (PSD 2) – Directive (EU) 2015/2366*. Retrieved January 3, 2018 from https://ec.europa.eu/info/law/payment-services-psd-2-directive-eu-2015-2366_en
11. European Payments Council (n.d.). *EPC Report to the ERPB on Instant Payments 160-15, Version 01 from 04 June 2015. European Payments Council*. Retrieved January 5, 2018 from <https://www.europeanpaymentscouncil.eu/sites/default/files/KB/files/EPC160-15%20EPC%20Report%20to%20the%20ERPB%20on%20Instant%20Payments.pdf>
12. Evans-Greenwood, P., Hillard, R., Harper, I., & Williams, P. (2016). *Bitcoin, Blockchain, and Distributed Ledgers: Caught Between Promise and Reality*. Retrieved January 3, 2018 from <https://www2.deloitte.com/content/dam/Deloitte/au/Images/infographics/au-deloitte-technology-bitcoin-blockchain-distributed-ledgers-180416.pdf>
13. FinTechCity (2017). *Home of The FinTech50*. Retrieved January 5, 2018 from <https://www.thefintech50.com>
14. FinTechCity (n.d.). *The FinTech50 2017 Yearbook. ISSUU*. Retrieved January 5, 2018 from https://issuu.com/fintechcity/docs/ft50_2017_yearbook_lo_res_ee49d79ce632b3
15. Groenfeldt, T. (2017). *FinTechs Are Surpassing Banks On Cross-Border Payments. Forbes*. Retrieved January 6, 2018 from <https://www.forbes.com/sites/tom-groenfeldt/2017/05/24/fintechs-are-surpassing-banks-on-cross-border-payments/#3317bdaf47b5>
16. Gulamhuseinwala, I., Roy, S., & Viljoen, A. (2015). *Innovating with RegTech: Turning regulatory compliance into a competitive advantage. EY*. Retrieved December 29, 2017 from [http://www.ey.com/Publication/vwLU-Assets/EY-Innovating-with-RegTech/\\$FILE/EY-Innovating-with-RegTech.pdf](http://www.ey.com/Publication/vwLU-Assets/EY-Innovating-with-RegTech/$FILE/EY-Innovating-with-RegTech.pdf)
17. Hardie, S., Wood, J., & Gee, D. (2016). *Mapping the Fintech bridge in the open source era – Fintech Disruptors Report*. MagnaCarta Communications. Retrieved December 28, 2017 from <https://www.aciworldwide.com/-/media/files/collateral/other/aci-magna-carta-fintech-disruptors-report.pdf>
18. He, D., Leckow, R., Haksar, V., Mancini-Griffoli, T., Jenkinson, N., Kashima, M., Khiaonarong, T., Rochon, C., & Tourpe, H. (2017). *Fintech and Financial Services: Initial Considerations*. International Monetary Fund. Retrieved January 6, 2018 from <https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2017/06/16/Fintech-and-Financial-Services-Initial-Considerations-44985>
19. Khalil, I. A. (2017). *The Rapid Growth of Fintech: A Revolution In The Payments Industry. Entrepreneur Media*. Retrieved January 4, 2018 from <https://www.entrepreneur.com/article/280402>
20. Kim, Y., Park, Y. J., & Choi, J. (2016). *The Adoption of Mobile Payment Services for “Fintech”. International Journal of Applied Engineering Research, 11(2), 1058-1061*. Retrieved from <https://pdfs.semanticscholar.org/2c96/8789b9188833f6189943f325b44aa69c9b9c.pdf>
21. KPMG (2016). *The Pulse of Fintech Q4 2016: Global analysis of investment in fintech*. KPMG International Cooperative. Retrieved January 3, 2018 from <https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2017/02/pulse-of-fintech-q4-2016.pdf>
22. Life.SREDA, *Fintech Ranking (2016). Overview of APIs and Bank-as-a-Service in FINTECH*. Retrieved December 30, 2017 from <https://www.bank-as-a-service.com/BaaS.pdf>
23. Lu, K. (2015). P2P, P2C, O2O, B2C, B2B, ecommerce terms explained.

- WebHostPark*. Retrieved January 4, 2018 from <http://www.webhost-park.com/p2p-p2c-o2o-b2c-b2b-ecommerce-terms-explained>
24. McDermott, K. (2016). The mobile payments report 2016: An omnichannel evolution. *Payvision*. Retrieved January 4, 2018 from <https://www.payvision.com/the-mobile-payments-report-2016-an-omnichannel-evolution>
25. Park, Y. S. (2006). *The Inefficiencies of Cross-Border Payments: How Current Forces Are Shaping the Future*. George Washington University. Retrieved February 16, 2018 from <http://euro.ecom.cmu.edu/resources/elibrary/epay/cross-border.pdf>
26. Price, R. (2015). How TransferWise Works. *Business Insider UK*. Retrieved January 5, 2018 from <http://uk.businessinsider.com/how-transferwise-works-2015-1>
27. Pryvatbank (2015). *PryvatBanky TransferWise zapustyly vyhidni perekazy v Ukrainu*. Retrieved January 6, 2018 from <https://privatbank.ua/news/privatbank-transferwise-zapustili-vig-dn-perekazy-v-ukrajinu>
28. PwC (2016). *Blurred lines: How FinTech is shaping Financial Services – Global FinTech Report*. Retrieved December 28, 2017 from <https://www.pwc.com/gx/en/advisory-services/FinTech/pwc-fintech-global-report.pdf>
29. PYMNTS.com (2017). *X-border Payments Optimization Tracker: an update on the trends and players driving cross-border payments*. Retrieved January 5, 2018 from <https://www.pymnts.com/x-border-payments-optimization>
30. Ravishankar, A. (2018). *Cross-border Money Transfer Using Blockchain – Enabled by Big Data*. Retrieved September 3, 2018 from <https://www.infosys.com/industries/cards-and-payments/resources/Documents/cross-border-money-transfer.pdf>
31. Tarasyuk, M. V., & Koscheyev, A. A. (2017). Innovations in the Global Digital Financial Sector: Estimation of Transformations. *Actual problems of international relations*, 131, 94-110. Retrieved January 2, 2018 from <http://journals.iir.kiev.ua/index.php/apmv/article/download/3167/2842>
32. USAID Financial Sector Transformation Project, UNIT. City (2018). *FinTech in Ukraine*. Retrieved June 5, 2018 from http://data.unit.city/fintech/fgt34ko67mok/fintech_in_Ukraine_2018_ua.pdf
33. Varga, D. (2017). Fintech, the new era of financial services. *Vezetéstudomány | Budapest Management Review*. Retrieved June 28, 2018 from https://www.researchgate.net/publication/321208233_Fintech_the_new_era_of_financial_services
34. Zherdetska, L. V., & Horodynskyi, D. I. (2018). *Development of Financial Technologies: Threats and Opportunities for Banks*. Retrieved January 6, 2018 from http://www.economyandsociety.in.ua/journal/10_ukr/101.pdf