

ARTICLES

CENTRAL EUROPEAN REVIEW OF ECONOMICS & FINANCE
Vol. 44, No 3 (2023) pp. 61-78
DOI <https://doi.org/10.24136/ceref.2023.014>

Wiesław Łukasz Macierzyński¹, Michał Macierzyński²

DEVELOPMENT OF NEW PAYMENT SERVICES AND THE ROLE OF THE FINTECH SECTOR DURING THE COVID-19 PANDEMIC

Abstract

Purpose: The purpose of the article is to present both theoretical and practical basis for development of payment services in Poland and in the whole world during the COVID-19 pandemic. Over this time there was a sharp rise in e-commerce along with a fast growth of the number of consumers making online payments. This resulted in changes in adoption of new technologies and payment services. Apart from those which were the consequence of quickening the pace of change

¹ DSc Wiesław Łukasz Macierzyński is a Professor at the University in Radom, a graduate from the University of Warsaw, the Head of the Chair in Economic Politics and Banking at the Faculty of Economics and Finance at the University in Radom. He is the author of 80 publications (including 11 monographs) covering the areas of banking, investor relations, public relations, advertising, marketing and management. He is a co-founder and a long-time member of the Review Committee of Polish Business Ethics Association – EBEN Poland.

² PhD Michał Macierzyński is the head of the Digital Services Department in PKO Bank Polski (General Savings Bank – Bank of Poland), an assistant at the Faculty of Journalism at the University of Warsaw, an analyst in Bankier.pl SA, an initiator, a co-founder, and a vice-president of the Financial Counselling Companies Association. He is the founder and a long-time editor-in-chief of the website PRNews.pl and the Financial Review portal Bankier.pl. In 2007 he received the Marian Krzak Journalism Award, and in 2008 he was announced the Journalist of the Year by the E-Economy Congress at the Polish Bank Association.

in the consumers' behavior, a crucial role, especially in developing countries, was played by local regulators, who somehow forced financial institutions to create new solutions, which fintech readily made good use of. In numerous countries it fostered radical and groundbreaking quickening of the pace of shifting to electronic payments and creating a new sort of payment services, adjusted to the needs and expectations of younger consumers.

Methodology: The paper uses the method of an economic analysis and literature review – mostly electronic sources, descriptive and comparative analyses.

Findings: From customers' perspective, the impact of COVID-19 pandemic on development of new payment services should be acknowledged as positive, or even groundbreaking in some developing countries. Over the years 2020-2021 the number of customers making on-line payments, especially mobile payments, grew rapidly. This was the result of a fast, forced by pandemic, growth in sales in e-commerce. Consequently, it enabled to introduce and widely promote new financial services – based on open banking, and promoting solutions targeted at young consumers, e.g. deferred payments. Even though the pandemic is over, the interest rate rise and the consequences of the war in Ukraine are bound to bring further, dynamic development of such payment services, as well as their popularization on more and more new markets all over the world.

Practical implications: The analysis of relations between theoretical and practical bases of widespread adoption of new solutions concerning on-line payments in the world during the COVID-19 pandemic is an important factor in the development of e-commerce market and financial services. The fact that digital forms of payments have become very common brought about the network effect, a situation when the value for the customer depends on the number of users of a particular solution. Due to that, poorer, developing countries could, making use of the solutions based on open banking and the technology provided by fintech, quickly popularize cashless, and electronic payments. Only a few years ago it was estimated that in the countries lacking the standard payment infrastructure it would take decades to reach this level. Also, in developed countries the pandemic contributed to popularization among young consumers of solutions adapted to their preferences, being an alternative to traditional credit cards. Deferred payments are a solution which is commonly used in e-commerce, and their main merits include increasing both conversion rates and average order value. However, it needs to be emphasized that this goes with a less flexible business model of the companies providing such services in high

interest rate environment, as well as adverse consequences of broad access to such services. Many countries have observed a growth of customer debt - which effects both credit worthiness and problems to pay off rising debts. This results in imposing formal regulations on deferred payments markets more and more frequently.

Keywords: fintech, e-commerce, deferred payments, COVID-19 pandemic.

JEL Classification: G20

1. Introduction: the impact of COVID-19 pandemic on economy in Poland and in the world

The COVID-19 pandemic posed a great challenge to global economy. First and foremost, it burdened healthcare systems in every country, resulting in extremely negative influence on inhabitants of the countries it affected. The consecutive lockdowns in numerous countries resulted in unemployment rise. It suddenly unsettled the market of raw materials and international trade (Jędrzejowska, Wróbel 2021). In 2020 the international turnover in services decreased by 20.1% whereas trade in goods decreased by 7.4% (Mroczek, 4.02.2022). All financial markets reacted negatively, which consequently, resulted in a threat to solvency of numerous companies affected by direct or indirect effects of closing many sectors of economy. With shrinking economy and tax revenues decline, some countries were forced to introduce helping shield programs, as well as take up costly actions to prevent the spread of the virus. As a consequence, budget deficits increased, and debt accumulated dangerously faster.

The impact of COVID-19 pandemic on particular sectors of economy was widely diverse and multidirectional. On one hand, the restrictions imposed in connection with the epidemic threat resulted in a slump in tourist, transport, and gastronomy industries. On the other hand, however, IT services observed continuous growth, which was related to a high demand for information technologies during lockdown. Services connected with trade in goods, fuel transport excluded, noticed relatively only slight decreases. One of the reasons for this was a rapid growth of e-commerce. According to the data presented by the World Trade Organization (WTO), the value of the world exports of services over the COVID-19 pandemic decreased from US\$ 6.1 trillion in 2019 to US\$ 4.9 trillion in 2020, which was the lowest level since 2013. It needs to be emphasized, however, that over the same period there was an increase in exports of information services – by 8% YOY, and financial services – by 4% YOY. That means that information services made up more than 12% of the world exports of services in 2020, and the contribution

of financial services increased to 11% (Mroczek, 27.01.2022). This growth was strictly connected with the changes resulting from the effects of the pandemic within economies of individual countries. It was a consequence of the phenomenon when whole societies adapted to a new, unprecedented situation – an acceleration in the transformation of digital economy, but most of all, a rapid growth of retail e-commerce. The contribution of e-commerce in global retail trade increased from 13.8% in 2019 to 17.8% in 2020. In was an absolutely unprecedented growth of e-commerce.

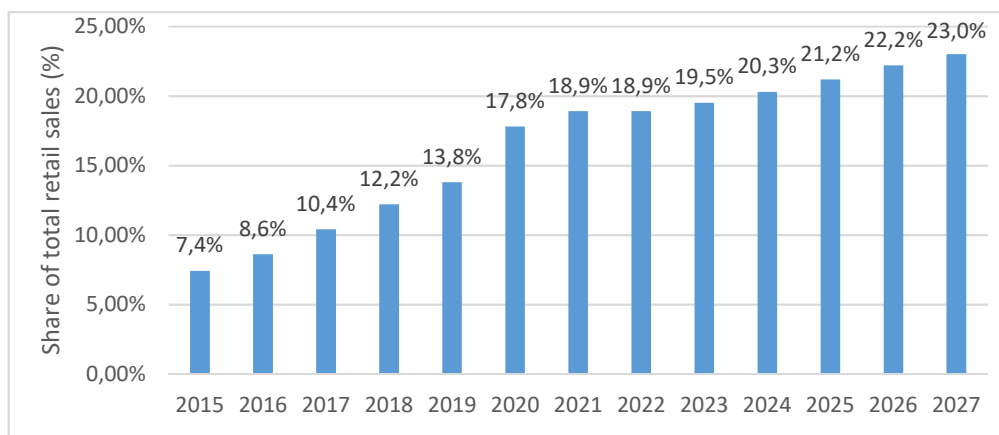


Figure 1. E-commerce as share of total retail sales worldwide 2015-2027

Source: D. Coppola, 29.08.2023, E-commerce as share of retail sales worldwide 2015-2027, <https://www.statista.com/statistics/534123/e-commerce-share-of-retail-sales-worldwide/> [Access: 10.09.2023]

In 2021 global retail e-commerce was close to US\$ 5 trillion, whereas forecasts indicate that by 2025 it may have exceeded even US\$ 7 trillion. This increase is thanks to rapidly growing local markets, such as Latin America. Over the period of COVID-19 pandemic, digital development surged there, which contributed to a rapid growth of e-commerce. Such a degree did it reach that Brazil and Argentina became the leaders as for the most quickly growing retail e-commerce markets in the world (Statista.com; 10.09.2023). This tendency strongly correlates with significantly accelerating better access to the Internet. The rate of the Internet users worldwide, as assessed by the International Telecommunication Union (ITU), is steadily growing. It was estimated that in 2005 13.8% of global population had permanent or occasional access to the Internet. This rate increased to 53.8% in 2019. However, the global data do not show important details. The numbers for developed countries (86.3%) were almost twice, and more than four times bigger than for developing countries, and the least developed countries respectively

(47% and 19.1%). Access to the Internet in Europe (82.5%) is more than three times higher than in Sub-Saharan Africa (28.2%). In developing countries access to the Internet is restricted due to infrastructure and financial limitations. This situation is totally changing thanks to mobile broadband access, which democratized the possibility to use the Internet not only in less urbanized regions, but first and foremost, in developing countries, where access to conventional, stationary broadband Internet connection was limited. The higher demand for the Internet access put pressure on Internet service providers. Data transmission grew rapidly, and most networks observed at the beginning of the pandemic an annual increase from 30% to 45% as compared to the before-pandemic levels (UN, 2021).

In most countries cellular networks quickly adopted to the increased demand for data transmission. It also contributed to larger investment in infrastructure, and led to changes in regulations and business models. As a result, e-commerce benefited and thus surged. For example, according to OECD, the share of e-commerce in total retail sales in the USA increased from 11.8% to 16.1% between the first and the second quarters of 2020. In the UK the growth was even more spectacular, as e-commerce increased from 20.3% to 31.3% (OECD, 7.10.2020). The situation in this matter was similar in other countries. In China, the share of e-commerce in total retail sales increased from 19.4% in August 2019 to 24.6% in August 2020, whereas in Kazakhstan – from 5.0% in 2019 to 9.4% in 2020 (UN, 2021). As for Poland, this rate grew from 7.6% in the whole year 2019, to nearly 12.0% in April of the following year (GUS, 22.06.2020). On the other hand, according to the data collected by PwC, in the whole year 2020 the online channel made up 14% of the total value of retail sales in Poland, which was attributed to the pandemic and an accelerated development of e-commerce platforms. The value of trade in goods online increased by 35% between 2019 and 2020, reaching the level of PLN 100 billion. Such a huge surge in e-commerce was commonly observed in the whole world. The analysts of this phenomenon referred to the analysis by IBM U.S. Retail Index. According to it, in the USA, the pandemic accelerated the shift from physical shops to online shops by about five years (Perez, 24.08.2020). Only a quarter of a year was enough to reach what was impossible over a few previous years, i.e. to significantly exceed 10% share in retail sales in this country (Sterling, 12.08.2020). Along with the rapid growth of e-commerce, the number of online shops and sales of e-services increased. All that had a significant impact on acceleration in the development of payment services.

The changes in consumers' behavior altered the operating environment of businesses all over the world. In case of the sector of payments,

the global income fell approx. by 22% over the first six months of the year, as compared to the same period in 2019 (McKinsey&Company, 2020). However, in case of retail sales, the impact of COVID-19 pandemic was mainly connected with the change in consumers' behavior. The fear of catching the virus significantly influenced the methods of paying both in physical shops and on the Internet. For the fear the virus might be spread by banknotes and coins, the number of payments by credit cards extremely increased, especially contactless payments and mobile payments. It was facilitated by increasing transaction limits without PIN codes. In most countries the limit was doubled, just like in Poland – from PLN 50 to PLN 100 (Deloitte, 4.10.2020). Avoiding physical contact also had influence on using ATMs. In India, or in the UK this decreased by almost 50%.

The pandemic influenced e-commerce also because more attention was paid to contactless delivery, therefore avoiding payment in cash or by card on delivery. According to the data by the World Bank, over the pandemic, in developing countries, the number of people paying for their purchases by the means of a credit card, a mobile phone, or a transfer from the bank account increased by 40%. The number of people using these methods of payment for fixed expenses also increased – by one third. In Poland this figure is estimated to have grown by as much as 2 million (Obserwator Finansowy, 30.07.2022).

According to the data by the World Bank, in 2021 in developing countries, China excluded, 8% of people aged 15 and over paid for their purchases by the means of cashless methods. Including China, where such methods are already widespread (used by 82% of adult population), this share increases approximately to 20%. The numbers are impressive not only when presented in percentage, but also in absolute value. Since the outbreak of the pandemic, in China the number of people doing cashless shopping has increased by 100 million, and in India by 80 million (Demirgüç-Kunt, Klapper, Singer, Ansar, 2022).

The unprecedented and rapid increase in e-commerce, a growing number of consumers using on-line payment methods is the result of an accelerated change in a pattern of behavior, which happened in response to the crisis connected with the COVID-19 pandemic. It caused a fundamental change in adopting new technologies and payment services. A good example of a solution of this type is making use of the payment infrastructure between bank accounts in real time, but first and foremost, with the use of mobile applications. Although this solution has been known for many years, it laid the foundations for open banking. The pandemic accelerated, and in some cases was simply the driving force behind implementing suitable regulations in many countries. To this day (2023),

almost 100 countries all over the world either have already accepted or are considering accepting one or other form of open banking.

Among those countries were Brazil (2020), Colombia (2022), Nigeria (2022), Saudi Arabia (2022), Russia (2020), Macedonia (2022), or Georgia (2020). On many markets the pandemic accelerated the implementation of the earlier accepted regulations, which had been mostly introduced by local regulators, who somehow forced financial institutions to create new solutions. Interestingly, in some countries, open banking embraced all financial institutions, not only banks. That was the case in e.g. Brazil, Colombia, Mexico, Nigeria, Saudi Arabia, the Philippines, or Jordan. This solution brings interesting effects. For example, over two years following the initiation of the Open Finance program in Brazil, customers gave 17.3 million consents to process their personal data. This country reached the number of 5 million bank accounts within less than a year (five times faster than the United Kingdom). That puts Brazil at the top as for the adoption of the idea of open banking. A broad extent of implementation covers not only banking services, but also insurances, payments, and investments. It allows a quick adoption of new solutions provided by fintechs (Open Bank Projekt, 2023).

2. The development of new financial services during the COVID-19 pandemic

The pandemic period made investments in instant banking bring higher benefits – both in physical points of sale and in e-commerce. This tendency was a response to customers' common expectations concerning the pace of money transfer, the comfort, but mainly, lower costs of such operations in comparison with previous solutions, such as e.g. PayPal. Also, a high adoption of mobile applications played a significant role. Thanks to them it was possible to make the customer experience be the same for all methods of payment, regardless of whether it took place in a physical shop, on an Internet website, or a mobile application. It contributed to a more widespread use of such systems as GrabPay in Singapore, or banking solutions such as MobilePay in Denmark, or BLIK in Poland. In Great Britain, an average daily value of transactions processed by the service FasterPayments increased by over 10% from the fourth quarter of 2019 to the end of March 2020. A spectacular increase in e-payments took place in India, where banks intensified their digital offers, integrating bill payments, e-commerce, and creating a unified payment interface (UPI). This local system of payments in real time is available in mobile banking applications, Internet shops, or mCommercer applications. The new solution noted a spectacular increase by about 70% over the first seven months of 2020. This growth is the most visible while comparing the number of traditional payment cards and other methods of payment,

as already in 2021, the number of transactions made by the use UPI was four times bigger, even though two years earlier it was on a similar level, and the system itself was introduced in 2016. UPI was a solution which supported the post-pandemic economic growth in India. Digital payments grew very rapidly in this country. According to the report by Worldline, UPI made up as much as 84% of digital payments in India in 2022. It set a new record in May 2023 with 9.41 billion transactions in volume over one month. According to the National Payments Council of India, in terms of value, it was INR14.3trillion (Indian rupees), which is about GBP 136 billion (Singh, 2.07.2023). UPI connects over 300 Indian banks and enables seamless financial transactions through mobile applications like Google Pay, Amazon Pay, PhonePe, and Paytm. In total, up to the date, UPI has about 260 million users all over India, which enables instant cashless payments in the whole country, but first and foremost, introducing a considerable number of citizens into the formal economy. It especially refers to rural population, financially excluded for a long time. India eagerly promotes their example abroad, recommending the benefits resulting from the digital infrastructure model to the countries facing similar challenges. A copy of UPI solution is, e.g. Pix system, which was introduced in November 2020 in Brazil. Also, in 2022 Nepal was the first foreign country to officially introduce UPI into their national payment system. The government of Nepal hope it will be equally successful (Stacey, 21.07.2023).

3. A dynamic development of deferred payments (BNPL – Buy Now Pay Later) during the COVID-19 pandemic

A payment service which surged enormously during the COVID-19 pandemic were deferred payments. The concept of postponing payments for obtained goods is nothing new. It was used as early as in 19th century in case of more costly purchases, such as e.g. sewing machines, but also furniture, pianos, or farm machines. It enabled to increase sales of products with higher markups (Boxell, 15.09.2021). In years to come, deferred payments were offered by banks issuing *chargé* or credit cards. However, it required official checking of customers' credit worthiness. The solutions which more remind of today's deferred payments, a combination of a form of payment and a form of financing, appeared thanks to gas stations and department stores, such as e.g. Nordstrom in the USA (PYMNTS, 3.04.2018). In 1980s and 1990s, big chain stores in the USA launched private label credit cards. They targeted at middle class customers, offering extra benefits while shopping, discounts, or even a free delivery. Apart from being an additional source of income, such cards also served the purpose of loyalty cards (Gray, 27.12.2021). The modern business of deferred payments was created in 2005 by a company founded in Sweden – Klarna. Initially operating only nationwide – in Sweden, this business entity quickly

captured the European market. On American market, the first entity offering this type of solutions was Affirm, which was set up in 2012. Two years later Afterpay entered the market. The companies in question operated in a slightly different way, offering products adopted to the markets they had been operating on. While in the Anglosphere the standard solution is splitting your payment into 4 installments, paid every two weeks, with the first installment paid on the purchase, in Europe Klarna offered 'pay in 30 days', which allows customers to pay up to 30 days after the purchase. In most cases the business model included merchant fees. Depending on a country, they vary from 5% to 8% of each transaction, whereas standard credit card processing fees range from 2% to 3% of a transaction (Di Maggio, Katz, Williams, 2022). The differences in merchant fees, just like card processing fees can be observed on European markets, where on average, they range from 2% to 5%. However, it needs to be emphasized that height of fees charged by these companies is adjusted to the type of business, and is the highest in high markup clothes shops or shoe shops. This much higher level of fees results from a higher conversion rate, which is calculated by dividing the number of conversions (transactions made) by the total number of site visitors. In case of payments with Klarna, it increases by approx. 20%, whereas the value of orders increases to 30%. Also, an additional benefit is a bigger number of returning customers (Dębek, 30.01.2020). In the USA those numbers may be even higher. RBC Capital Markets estimates that BNPL increases conversion rates by as much as 20-30%, and even more in case of an average basket value (ABV) – by 30-50% (Perlin, 9.04.2021). Similar data is reported by companies operating in Poland (Pallus, 2.08.2021).

Deferred payments quickly gained popularity with both customers and merchants. It results from the merits this unregulated product has. In contrast to a credit card, BNPL products are constructed as an installment loan (repaid in one or four scheduled and set automatic payments). Deferred payments are offered by retail merchants acting as a go-between, and are connected with purchasing a particular product. One of their major upsides are significantly more liberal conditions that need to be satisfied to have them granted. Customers do not have to present any credit documents, and the very process of approval is fast and easy. There are numerous further benefits, such as e.g. no extra charges – providing customers stick to the repayment schedule, no commission charges for approval or using them, but also no, or minimal, reporting such products to credit bureaus. All these contributed to the fact that deferred payments took e-commerce payment markets by storm in many countries. Their users are mostly young people, from the so called 'Z Generation' and 'Millenials' (Meola, 20.07.2021).

Low costs of financing, due to lowering interest rates by central banks during the COVID-19 pandemic, along with growing values of companies both in stock markets and in evaluation by Venture Capital funds, triggered a fast expansion of such companies on further markets. Thus, also the value of transactions financed in this way was growing rapidly. In 2019 it was US\$ 34 billion, and it took only two years to reach US\$ 120 billion (de Best, 18.09.2023).

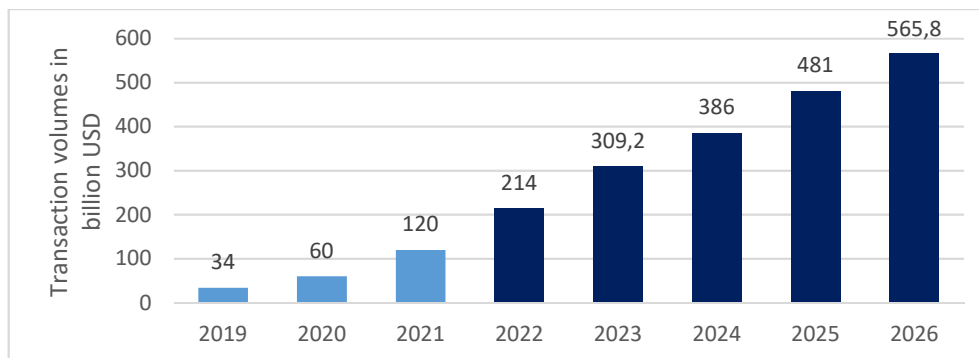


Figure 2. Global transaction value of BNPL in e-commerce in the years 2019-2021 (with forecasts from 2022 to 2026, in billion USD)

Source: de Best R., 18.09.2023 *Annual buy now, pay later (BNPL) global market size 2019-2021, with forecasts to 2026*; Statista.com, <https://www.statista.com/statistics/1311122/global-bnpl-market-value-forecast/> [Access: 20.09.2023]

At the same time, the number of users of such solutions was growing rapidly. According to analyses by Juniper Research, in 2022 there were approx. 360 million of BNPL users in the world (Smith, 8.08.2022). The biggest companies in this field included Klarna with 150 million users, PayPal – 60 million, Afterpay -16 million, and Affirm -13.9 million. In March 2023 Apple Inc. became a new player on this market. All this translated into a growing share of such payments in a total number of e-commerce payments. Globally, in 2022, BNPL made up 5% of all e-commerce transactions. However, in some countries, like e.g. Sweden or Germany, they exceeded the level of 20%, as presented in Table 1.

Table 1. The share of BNPL in e-commerce payments in selected countries in selected years from the period 2016-2022 (%)

Inventory	2016	2019	2020	2021	2022
In total	0,4%	1,6%	2,1%	3,0%	5,0%
Sweden	12%	25%	23%	25%	24%
Germany	3%	18%	19%	20%	23%
Norway	5%	13%	15%	18%	18%
Australia	-	8%	10%	11%	14%
Belgium	5%	6%	7%	9%	14%
The Netherlands	6%	8%	9%	12%	13%
Finland	-	8%	12%	13%	13%
Denmark	5%	7%	8%	12%	12%
New Zealand	-	-	10%	10%	10%
Great Britain	1%	3%	5%	6%	8%
Italy	-	1%	2%	4%	6%
Canada	-	-	-	3%	6%
The USA	-	1%	2%	4%	5%
Singapore	-	-	3%	4%	5%
France	1%	2%	4%	4%	5%
Malaysia	-	-	-	4%	4%
Indonesia	-	-	3%	3%	4%
Ireland	-	-	-	2%	4%
India	-	-	3%	3%	4%
China	-	-	-	0%	4%
Japan	-	2%	3%	3%	3%
Spain	-	1%	2%	2%	3%
The United Arab Emirates	-	-	-	1%	2%
Poland	-	-	2%	2%	2%
The Philippines	-	-	3%	2%	2%

Source: R. de Best, 31.08.2023, Buy now, pay later (BNPL) share in e-commerce in 41 countries worldwide 2016-2022, Statista.com, <https://www.statista.com/statistics/1233850/online-bnpl-penetration-country/> [Access: 20.09.2023]

Rapidly increasing interest rates and the war in Ukraine significantly influenced the fintech market, the market of deferred payments included. The stocks of publicly traded fintech companies which offered such services recorded a fall by as much as 95% from their peak in March 2021. (Lee, McKay, 1.03.2023).

When in 2018 H&M invested US\$ 20 million in Klarna, purchasing 1% of the company shares, fintech was valued at US\$ 2.5 billion (Lunden, 8.10.2018). A year later, the value grew to US\$ 5.5 billion, making Klarna the most expensive startup in Europe, in fintech business (Milne, 6.08.2019). In the next funding round, in 2020, Klarna raised another US\$ 650 million, at a post-money valuation of US\$ 10.6 billion

(Wąsowski, 17.09.2020). After another investment, at the beginning of 2021, Klarna closed the round at a post-money valuation of as much as US\$ 31 trillion, which was higher than that of Deutsche Bank, the biggest bank in Germany (Forbes, 25.03.2021). In June 2021, after the next funding round, the value of Klarna increased to US\$ 46 trillion (Duszczyk, 10.05.2022). Just before the outbreak of the war in Ukraine it had been forecasted that the value of the company would rise to a titanic quote of US\$ 60 billion (Nair, Gopinath, Foerster, David, 9.02.2022). A sudden change in the global economy resulted in a drop in the value of most fintechs. This was mainly due to the rise of interest rates, which significantly increased the cost of capital. A distinct example of this situation was a rise in the 10-year U.S. Treasury bond yield, the highest since 2007 (Puls Biznesu, 16.08.2023), and FED decision in 2023 to raise interest rates to the highest level in 22 years. This, in turn, stopped most investments on the fintech market (Chiavarini, 26.06.2023). The valuation of Klarna plunged to the level of US\$ 6 billion, still in 2022 (Tan, Foerster, Roof, 1.07.2022), and the very company reported a US\$ 1 billion loss (Ringstrom, Mukherjee, 28.02.2023). Not enough flexible a business model of such companies was not ready for changes of market conditions. Therefore, the forecasts of the increase for the following years may be overestimated. The high cost of debt financing is just one of many problems facing this sector. The most serious one may be imposing formal regulations on the deferred payments market. In many countries, customer debt growth has been observed, which influences creditworthiness and problems with paying off the present debt (Jones, 23.06.2022; Washington Post, 12.12.2022; Carrns, 29.12.2022)). For this reason, some markets either have already introduced, or are going to introduce regulations strengthening protection of consumers, and regarding deferred loans as a form of a loan (Norton Rose Fulbright 12.2022). However, it seems that all the changes may slow down, but still not halt the growth of this form of payment. A good example of this tendency is Allegro Pay, which is a service of deferred payments provided by Allegro.pl, the largest Polish marketplace. In the second quarter of 2023 purchases made with a use of this service made up as much as 11.9% of total gross sales on this platform (Wirtualnemedi.pl, 29.09.2023).

Summary

Deregulation and globalization of financial systems, along with quick implementing new IT solutions, significantly decreased the barrier of entering the banking sector and offering payment services, which for many years were a traditional and key area of bank activity. Within several years they led not only to a quality transformation of the banking environment, but also to their role itself. Those changes resulted from

a complex, but at the same time, multidirectional influence of technological, economic, political, legal, and social factors. However, it is hard to determine the individual influence of the particular factors on the changes. Even though they are of a different type and differently shape micro- and macro- environments, they are hard to separate, as they remain in a strong interrelation, which results in a 'cause and effect' relationship, or feedback loops. Nevertheless, the most important factors which shaped the areas of the most significant transformation include: deregulation, liberalization, and disintermediation of financial markets, a decrease in profit margins, a strong growth of competition in the sector of financial services, globalization, steady technological advances, but also an increase in customers' needs, resulting from growing awareness and financial education. From the very beginning of e-commerce development, it was clear that the key obstacle in its growth was the possibility of offering customers safe and fast payments. The effect of development of e-commerce was that a wide range of new, alternative to payment cards, methods of payment appeared on the market. One of them is deferred payment. It is becoming one of the forms of payment which increase the level of sales, especially with the younger customers. Their advantage over conventional credit cards is a quicker pace of credit-decision making, lower interest rates, but also adaptation to younger consumers' needs (The Economic Times, 18.09.2023). Further, dynamic development of BNPL will have to consider maintaining the environment of high interest rates for a longer period. It may involve consolidation of this market, as well as introducing additional fees imposed on the users for the services which so far have been free of charge (Gurman, Smith, 21.09.2023).

Bibliography

1. Boxell J., 15.09.2021; *How Old-Style Buy Now, Pay Later Became Trendy 'BNPL'*; Bloomberg, <https://www.bloomberg.com/news/articles/2021-09-15/how-old-style-buy-now-pay-later-became-trendy-bnpl-quicktake#xj4y7vzkg> [Access: 16.09.2023].
2. Carrns A., 29.12.2022; *The Downsides of Using "Buy Now, Pay Later"*, The New York Times, <https://www.nytimes.com/2022/12/29/your-money/buy-now-pay-later-loans.html> [Access: 16.09.2023].
3. Chiavarini L., 26.06.2023; *The state of global fintech in Q2*; Dealroom.co; <https://dealroom.co/blog/fintech-q2-2023-roundup> [Access: 22.09.2023].
4. Coppola D., 29.08.2023, *E-commerce as share of retail sales worldwide 2015-2027*, Statista <https://www.statista.com/statistics/534123/e-commerce-share-of-retail-sales-worldwide/> [Access: 10.09.2023].

5. de Best R., 18.09.2023; *Annual buy now, pay later (BNPL) global market size 2019-2021*, with forecasts to 2026; Statista.com, <https://www.statista.com/statistics/1311122/global-bnpl-market-value-forecast/> [Access: 20.09.2023].
6. de Best R., 31.08.2023, *Buy now, pay later (BNPL) share in e-commerce in 41 countries worldwide 2016-2022*, Statista.com, <https://www.statista.com/statistics/1233850/online-bnpl-penetration-country/> [Access: 20.09.2023].
7. Deloitte, 4.10.2020; *Pandemia przyspiesza digitalizację sektora bankowego*, <https://www2.deloitte.com/pl/pl/pages/press-releases/articles/pandemia-przyspiesza-digitalizacje-sektora-bankowego.html> [Access: 5.09.2023].
8. Demirgüç-Kunt A., Klapper L., Singer D., Ansar S., 2022, *The Global Findex Database 2021. Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19*, World Bank, <https://thedocs.worldbank.org/en/doc/25dde6ca97fde9ec442dcf896cbb7195-0050062022/original/Findex-2021-Executive-Summary.pdf>.
9. Dębek K., 30.01.2020; *Fintech zbudowany przez Siemiatkowskiego wart 40 mld zł. Jak się tworzy taką firmę?*; Forbes, <https://www.forbes.pl/biznes/start-up-klarna-i-platnosci-internetowe-rozmowa-z-sebastianem-siemiatkowskim/kvlzzwt> [Access: 16.09.2023].
10. Di Maggio M., Katz J., Williams E., 2022; *Buy now, pay later credit: User characteristics and effects on spending patterns*; https://www.hbs.edu/ris/Publication%20Files/Buy%20now,%20pay%20later%20credit_EW_a84b3c98-3608-4f28-a534-8545246ac522.pdf [Access: 15.09.2023].
11. Duszczuk M., 10.05.2022; *Klarna chce iść w ślady Amazona*; Parkiet, <https://www.parkiet.com/technologie/art36265021-klarna-chce-isc-w-slady-amazona> [Access: 21.09.2023].
12. Forbes, 25.03.2021; *Klarna. Start-up Sebastiana Siemiatkowskiego większy od Deutsche Banku*; <https://www.forbes.pl/biznes/klarna-sebastiana-siemiatkowskiego-i-wycena-firmy-to-najbardziej-wartosciowy-start-up/0dskzkv> [Access: 21.09.2023].
13. Gray J., 27.12.2021; *The evolution of buy now, pay later; Retail Brew*, <https://www.retailbrew.com/stories/2021/12/27/the-evolution-of-buy-now-pay-later> [Access: 16.09.2023].
14. Gurman M., Smith P., 21.09.2023; *Affirm is Exploring Subscription Service to Guarantee 0% APR on Purchases*; <https://www.bloomberg.com/news/articles/2023-09-21/affirm-exploring-7-99-affirm-plus-service-to-guarantee-0-apr-on-purchases?leadSource=verify%20wall#xj4y7vzkg> [Access: 30.09.2023].

16. GUS, 22.06.2020; *Dynamika sprzedaży detalicznej w maju 2020 roku*, <https://stat.gov.pl/obszary-tematyczne/ceny-handel/handel/dynamika-sprzedazy-detalicznej-w-maju-2020-roku,14,65.html> [Access: 13.09.2023].
17. Jędrzejowska K., Wróbel A.; 2021; *Wielki lockdown i deglobalizacja: wpływ pandemii COVID-19 na gospodarkę światową*, Rocznik Strategiczny 2020/21, Vol. 26, pp. 173-198.
18. Jones R., 23.06.2022; *A third of UK 'buy now, pay later' users say they can't handle payments*; The Guardian, <https://www.theguardian.com/business/2022/jun/23/buy-now-pay-later-uk-research> [access 22.09.2023].
19. Lee Y., McKay G., 1.03.2023, *Consumer Lender Zip Abolishes Global Plans After 95% Share Drop*; Bloomberg, <https://www.bloomberg.com/news/articles/2023-03-01/consumer-lender-zip-abolishes-global-plans-after-95-share-drop?leadSource=uverify%20wall#xj4y7vzkg> [Access: 21.09.2023].
20. Lunden I., 8.10.2018; *Klarna raises \$20M from H&M, will build financing and payment services for the fashion retailer*; TechCrunch, https://techcrunch.com/2018/10/08/payments-startup-klarna-raises-20m-from-hm-its-second-backer-from-the-fashion-world/?utm_source=divr.it&utm_medium=twitter&guccounter=1 [Access: 21.09.2023].
21. McKinsey&Company, 2020; *The 2020 McKinsey Global Payments Report*, <https://www.mckinsey.com/~media/mckinsey/industries/financial%20services/our%20insights/accelerating%20winds%20of%20change%20in%20global%20payments/2020-mckinsey-global-payments-report-vf.pdf> [Access: 14.09.2023].
22. Meola A., 20.07.2021; *Almost 75% of BNPL users in the US are millennials or Gen Z*; Insider Intelligence, <https://www.insiderintelligence.com/insights/buy-now-pay-later-gen-z-millennials/> [Access: 16.09.2023].
23. Milne R., 6.08.2019; *Klarna becomes most valuable EU fintech with \$5.5bn valuation*, Financial Times; <https://www.ft.com/content/3f16a05c-b828-11e9-8a88-aa6628ac896c> [Access: 16.09.2023].
24. Mroczek W., 27.01.2022; *Silny spadek światowego handlu usługami w 2020 roku*; Obserwator Finansowy, <https://www.obserwatorfinansowy.pl/bez-kategorii/rotator/silny-spadek-swiatowego-handlu-uslugami-w-2020-roku/> [Access: 15.09.2023].
25. Mroczek W., 4.02.2022; *Silny spadek światowego handlu usługami w 2020 roku*, Forsal.pl, <https://forsal.pl/gospodarka/artykuly/8345864,silny-spadek-swiatowego-handlu-uslugami-w-2020-roku.html> [Access: 16.09.2023].
26. Nair D., Gopinath S., Foerster J.-H., David R., 9.02.2022; *Europe Fintech Giant Klarna Considers Raising Fresh Funds*; Bloomberg, <https://www.bloomberg.com/news/articles/2022-02-09/europe-fintech-giant-klarna-is-said-to-mull-raising-fresh-funds#xj4y7vzkg> [Access: 21.09.2023].

27. Norton Rose Fulbright 12.2022; *Regulation Around the World. Buy now pay later*; https://www.nortonrosefulbright.com/-/media/files/nrf/nrfweb/knowledge-pdfs/47692_emea_brochure_regulation-around-the-world---bnpl-v4.pdf?revision=e0a93cc2-f788-489f-bccf-a7dc49b6ee1e&revision=5249820614647387904 [Access: 21.09.2023].
28. Obserwator Finansowy, 30.07.2022; *Pandemia przyspiesza cyfrowe płatności*, <https://www.obserwatorfinansowy.pl/bez-kategorii/rotator/pandemia-przyspiesza-cyfrowe-platnosci/> [Access: 12.09.2023].
29. OECD, 7.10.2020; *E-commerce in the time of COVID-19*, <https://www.oecd.org/coronavirus/policy-responses/e-commerce-in-the-time-of-covid-19-3a2b78e8/> [Access: 12.09.2023].
30. gOpen Bank Projekt, 2023; *Regulatin Open Banking 2023: A Snapshot of Global Progress*; <https://www.openbankproject.com/reports/regulating-open-banking-2023-global-progress/> [Access: 15.09.2023].
31. Pallus P., 2.08.2021; *Płatności odroczone powoli podbijają polski rynek. "Współczesna wersja kupowania na zeszyc"*, Business Insider, <https://businessinsider.com.pl/poradnik-finansowy/oszczedzanie/platnosci-odroczone-powoli-podbijaja-polski-rynek-wywiad-z-zalozycielem-paypo/g53t7rc> [Access: 16.09.2023].
32. Perez S., 24.08.2020; *COVID-19 pandemic accelerated shift to e-commerce by 5 years, new report says*; TechCrunch, <https://techcrunch.com/2020/08/24/covid-19-pandemic-accelerated-shift-to-e-commerce-by-5-years-new-report-says/?guccounter=1> [Access: 9.09.2023].
33. Perlin D., 9.04.2021; *2021 Outlook: Payments, Processing and IT Services; Capital Markets*, <https://www.rbccm.com/en/insights/tech-and-innovation/episode/2021-outlook-massive-shift-in-e-commerce-spend> [Access: 16.09.2023].
34. Puls Biznesu, 16.08.2023; *Summers: średnia rentowność obligacji 10-letnich USA na poziomie 4,75 proc. przez dekadę*; <https://www.pb.pl/summers-srednia-rentownosc-obligacji-10-letnich-usa-na-poziomie-475-proc-przez-dekade-1193110> [Access: 21.09.2023].
35. PYMNTS, 3.04.2018, *How Co-Branded Credit Cards Evolved From The Early 1900s Department Store*; <https://www.pymnts.com/news/payment-methods/2018/credit-card-brands-rewards-retail/> [Access: 15.09.2023].
36. Ringstrom A., Mukherjee S., 28.02.2023; *Payments firm Klarna posts smaller Q4 loss, eyes return to profit*; Reuters, <https://www.reuters.com/business/finance/payments-firm-klarinas-operating-loss-shrinks-q4-2023-02-28/> [Access: 22.09.2023].
37. Singh A., 2.07.2023, *UPI records 9 billion transactions in May worth Rs 14.3 trillion*; <https://www.wionews.com/india-news/upi-hits-record-9-billion-transactions-in-may-worth-rs-143-trillion-599456> [Access: 13.09.2023].

38. Smith S., 8.08.2022; *Buy Now Pay Later Users to Reach Over 900 Million Globally by 2027, Driven by Low Cost of Credit*; Juniper Research, <https://www.juniperresearch.com/press/bnpl-users-reach-over-900-million-by-2027> [Access: 20.09.2023].
39. Stacey S., 21.07.2023, *India's digital payments revolution is inspiring – both for developing nations and cyber-scammers*; TechMonitor; <https://techmonitor.ai/policy/digital-economy/india-digital-payments-upi-inspiring-developing-nations-cyber-scammers> [Access: 14.09.2023].
40. Statista.com, 10.09.2023; *Global e-commerce share of retail sales 2027 | Statista* <https://www.statista.com/statistics/534123/e-commerce-share-of-retail-sales-worldwide/> [Access: 10.09.2023].
41. Sterling G., 12.08.2020; *E-commerce explodes: 45% growth in Q2*; Search Engine Land, <https://searchengineland.com/e-commerce-explodes-45-growth-in-q2-339470> [Access: 12.09.2023].
42. Tan G., Foerster J-H., Roof K., 1.07.2022; *Klarna Discussing Valuation Cut to \$6 Billion From \$45.6 Billion*; Bloomberg, <https://www.bloomberg.com/news/articles/2022-07-01/klarna-discussing-valuation-cut-to-6-billion-from-45-6-billion#xj4y7vzkg> [Access: 22.09.2023].
43. The Economic Times, 18.09.2023; *Navigating the future of fintech: Exploring the buy now pay later*; <https://economictimes.indiatimes.com/news/international/uae/navigating-the-future-of-fintech-exploring-the-buy-now-pay-later/articleshow/103738292.cms> [Access: 30.09.2023].
44. UN, 2021; *COVID-19 and E-Commerce. A Global Review*, UN, 2021; https://unctad.org/system/files/official-document/dtlstict2020d13_en_0.pdf [Access: 10.09.2023].
45. Washington Post, 12.12.2022; *'Buy now, pay later' is booming. So are its problems*; <https://www.washingtonpost.com/opinions/2022/12/12/buy-now-pay-later-problems/> [Access: 22.09.2023].
46. Wąsowski M., 17.09.2020; *Firma założona przez Polaka jest najdroższym fintechem w Europie. Zebrała setki milionów dolarów*; Business Insider, <https://businessinsider.com.pl/finanse/klarna-najdrozszym-fintechem-w-europie-nowa-runda-finansowania-wrzesien-2020/zj4z1e0> [Access: 21.09.2023].
47. Wirtualnedia.pl, 29.09.2023, *Allegro Pay z kolejnym rekordem. Już 12 proc. zakupów na Allegro za pożyczki*; (autor: tw), <https://www.wirtualnedia.pl/arttykul/allegro-pay-jak-dziala-pozyczka-zakupy-na-raty> [Access: 30.09.2023].

