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ALTERNATIVE PAYMENTS – TAXONOMY, DEVELOPMENT, AND RELATED RISKS

INTRODUCTION

Alternative payments' market is one of the fastest growing financial market segments. The dynamics of the market's growth reflects the increase in customers' and investors' interest. The number of alternative payment methods and new market players become the real competition for traditional payments and traditional financial institutions, especially banks. The changes of customers' behaviour and expectations combined with other factors, such as technology development, internationalisation, liberalisation, and regulations have already changed the structure of retail payments and impacted on the share of cash, cards, and Automated Clearing House (ACH) payments in overall payments.

Payment innovations including alternative payment methods, platforms, and business models are designed to match customers' needs. Today, they are a part of the value chain that is usually focused on delivering the convenience during the whole purchase experience. At present, it means following the e-commerce trends. The number of electronic transactions is growing rapidly all over the world and entails development of payments. These new, innovative payment methods should be an inspiration for traditional payment services' providers. It is worth

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stressing that today over 300 alternative payment schemes operate around the world with more than 200 alternative payment methods[1]. It makes understanding the alternative payments more and more difficult. Concurrently, as the relatively new segment of the retail payments' market, it generates new threats.

Despite the growing interest in alternative payment methods and instruments, there is still a lack of commonly accepted definition and precise market data. The purpose of the paper is to identify the alternative payment methods, provide their taxonomy, assess their development and describe associated risks of frauds. The paper also discusses the factors influencing their further development. The results of the study are based on the critical analysis of available, not extensive literature regarding alternative financial services (including payments), statistical data of research companies and institutions altogether with consultancy firms' reports.

1. DRIVERS OF ALTERNATIVE PAYMENTS AND THEIR USAGE IN THE WORLD

During the last few decades, the world's economies have changed significantly. The role of the government has diminished, while the role of markets has increased, the economic transactions between countries and their citizens have substantially risen, and financial transactions have grown remarkably[2]. New technology development has enabled the transition to the network economy based on information technology, connectivity and human knowledge. Its development has influenced the whole economy changing markets, enterprises, customers' expectations and purchase behaviours[3]. E-commerce and m-commerce have become one of the fastest developing fields of the economy. Today consumers' lives are increasingly digitised – more and more of them, especially younger ones, are used to services delivered online and in real time. For the new generation of customers the speed and convenience are the key values, both as regards the shopping, as well as making a payment. All these changes have caused the necessity to implement new payment methods as the traditional payments have not been able to fulfil customers' expectations concerning the speed and convenience, especially in remote transactions.

Several factors stimulate the development of alternative payment instruments, but the prior and the most important one is the technology[4]. The technology

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1 *Global Payments Report Preview. Your Definitive Guide to The World of Online Payments*, November, London 2015, p. 11.

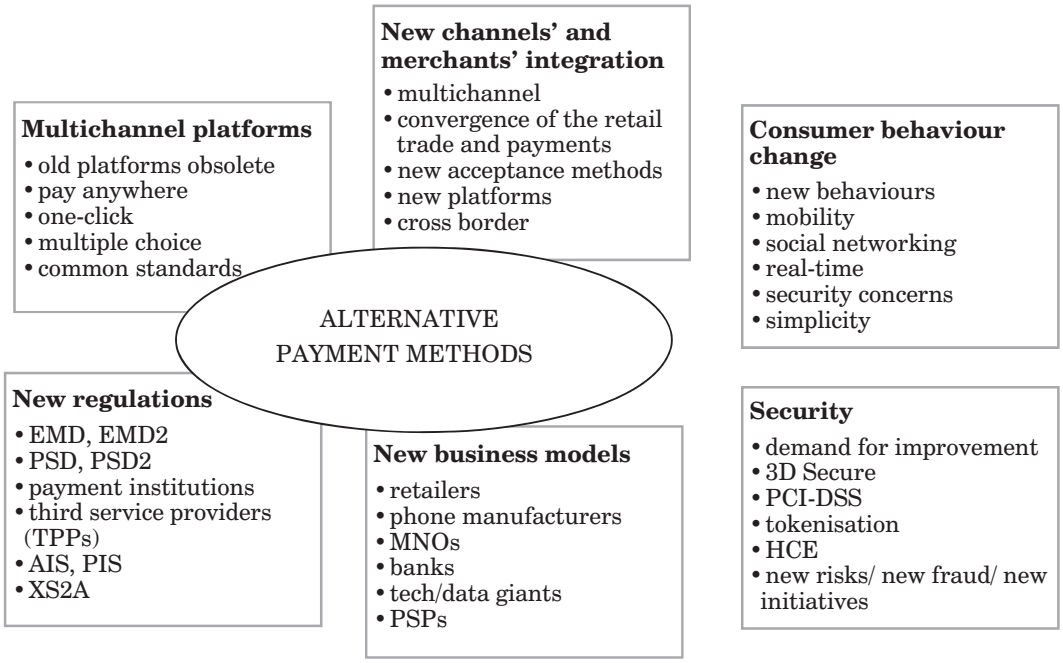
2 J. Cichorska, M. Klimontowicz, *Financialisation as a result of network economy's development*, Internet Quarterly „e-Finanse" 2016, vol.13/ nr 2, s. 1–12.

3 K. Patel, M. Delen, *Payments Systems Survey 2009: Executive Summary*, Capgemini 2009.

4 B.J. Sullivan, Z. Wang, *Nonbanks in the Payments System: Innovation, Competition and Risk – A Conference Summary,* Federal Reserve Board of Kansas City, Economic Review 2007, No. 3, Kansas City M.O.

development has influenced other factors, such as new payments channels and ways of payment acceptance, changes in customers' behaviour and merchants' integration resulting in creating of multichannel platforms and implementing new business models, and new requirements concerning the security (see Figure 1).

Figure 1. Key drivers for the alternative payments'development



Source: own work.

Contemporary payments enable in store and remote transactions between different kinds of entities (personal and corporate) using devices, such as laptops, tablets, smartphones and other. Many of these payments can not be supported by traditional ACH payments and card payments' schemes. New ways of acceptance are also needed to develop contactless payments using Near Field Communication (NFC), Quick Response codes (QR codes) and Bluetooth Low Energy (BLE).

Concurrently, a new generation of customers' entrance to the market takes place. The greater use of smartphones, tablets, and e-wallets, increasing the use of social media, and customers' expectations of instant, safe and simple payment methods mean that the traditional channels are less and less aligned with users' needs and expectations. New payment service providers, such as merchants are forced to build omnichannel offers allowing matching offers with customers' needs. They require new and different payment platforms able to support crossborder operations and integration with sophisticated loyalty programs based on big data analysis. The data can be captured from electronic and mobile payments linked

with electronic or mobile point-of-sales. Furthermore, many retailers try to include payments to their value for customer chain and gain profits captured by mobile network operators (MNO) and players, such as Google, Apple or Facebook. As a result, new business and commercial models have been implemented to create the new market structure.

The rapid development of alternative payment instruments has caused new risks and frauds. The security has become a demand of the main industry stakeholders. Security initiatives include 3D Secure, Payment Card Industry Security Standard (PCI DSS), tokenisation, and host card emulation (HCE).

The last factors that entail payments' changes are regulatory initiatives. The Electronic Money Directives (EMD1 and EMD2)[5] and First Payment Service Directives supports market diversification allowing nonbank payment service providers (PSPs) – such as electronic money institutions (EMIs) and payment institutions (PIs) – entering the payment market[6]. PSD2[7] goes even further – it allows the so-called Third Party Providers' (TPPs) access to customers' payment accounts at banks (XS2A). The intention of the European legislative bodies was to boost competition and innovation on the payment market and to make room for alternative payment providers and services.

All these factors have made the alternative payment proposals rapidly and continuously changing. According to WorldPay[8] over 300 alternative payment schemes operate around the world with more than 200 alternative payment methods.

The importance and dissemination of different payment methods vary by regions and countries. Globally, the usage of alternative payment methods grown on average by 35% in 2012[9]. The value of alternative payment transactions reached the level of 734 USD billions. Their share of total e-commerce transactions was 42%. Three years later, the value of such transactions increased to the level of 1300 USD billions (see Table 1). The WorldPay predicted that the value of the

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5 Directive (EU) 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC (Text with EEA relevance), http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32009L0110 [5.04.2017].

6 *Next Generation Alternative Retail Payments: User Requirements*, EBA Working Group on Electronic Alternative Payments 2014, Washington D.C. ; B.J. Sullivan, Z. Wang, *Nonbanks in the Payments System…*, *op. cit.*, s. 83–87.

7 Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC, http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32015L2366&from=EN [29.03.2017].

8 *Global Payments Report Preview...*, *op. cit.*, p. 3.

9 *Alternative Payments Pick 'n' Mix An overview of alternative payments in the global marketplace*, 2016, www.ecommera.com, p. 2.

transactions would be 2049 USD billion, and they would account for 58.2% all of the e-commerce turnover by 2020[10]. Around the world the fastest growing payment types are e-wallets. Undoubtedly, the increasing number of smartphones and app stores will help in developing mobile payments. The number and range of mobile payment systems have been systematically increasing, but very few are capable of the global reach yet. Most operate locally, in their homecountry or territory. Concurrently, the cash on delivery and direct debits are becoming less popular. The share of bank transfers remains stable.

Table 1. The value of alternative payments and their share in total payments in the e-commerce

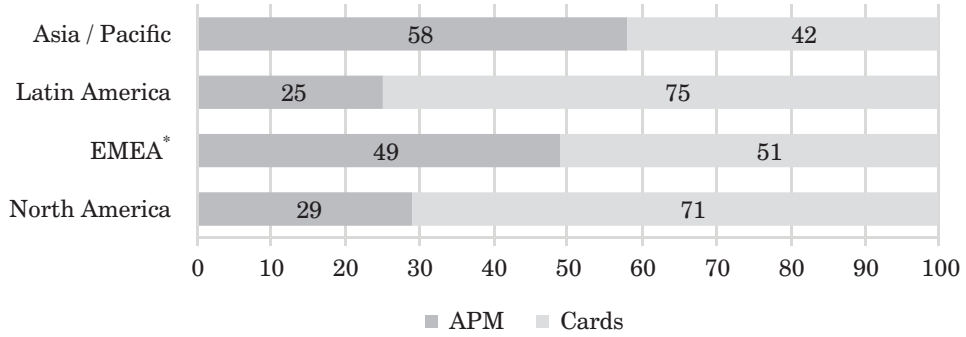
Type of alternative payment	2012		2014		2015	
	Transaction value (bn USD)	Share in the total e-commerce (%)	Transaction value (bn USD)	Share in the total e-commerce (%)	Transaction value (bn USD)	Share in the total e-commerce (%)
Bank transfers	122	7	212	11.2	249	10.5
Direct debits	42	2	6	0.3	4	0.2
E-wallets	295	17	387	20.5	722	30.5
Cash on delivery	93	5	124	6.4	171	7.2
Mobile payments	18	1	84	4.5	154	6.4
Local card schemes	164	10				
Pre-pay instruments						
Post-pay instruments						
E-invoices						
Digital currencies						

Source: own work based on *Global Payment Report. The Definitive Guide…*, *op. cit.*; *Your Global Guide to Alternative Payments,* London 2014; *Global Payments Report Preview…*, *op. cit.*; *Alternative Payments…*, *op. cit.*

[10] *Global Payment Report. The Definitive Guide to The World of Online Payments*, November, London 2016, p. 89–90.

At present, the market is very fragmented, and the market value is stretched over a broad spectrum of alternative payment schemes with paper, mobile, e-wallet, direct debit and bank transfers offerings. Although they are undoubtedly on the rise, they have not grown as fast as it was initially predicted. Except for the Asia Pacific countries, the card payments are still more popular (see Figure 2).

Figure 2. The split between cards and alternative payment methods (APM) in 2014 (%)



* Europe, Middle East, and Africa

Source: own work based on *Global Payments report preview…*, *op. cit.*, p. 13.

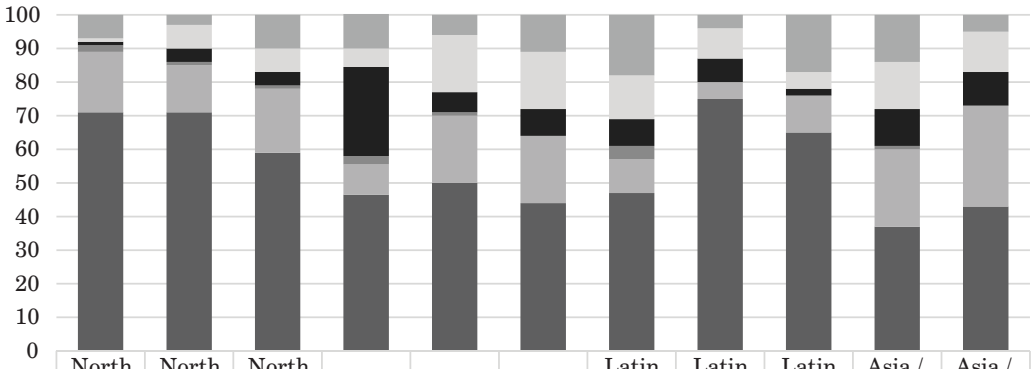
The traditional payment methods are popular in mature markets. North America, a leader in business-to-customer e-commerce, is a card dominated market (71%) where alternative payments are used less often (see Figure 3). In Europe, in 2012, 59% of payments were card payments. They were preferred in Denmark, France, Ireland, United Kingdom, Italy, Norway, Spain and Turkey. In Finland, Netherlands, and Poland bank transfers had the largest market share. Similarly, they dominated the Australian, Malaysian, Japanese, Singaporean and South Korean market in Asia Pacific Region. Among the alternative payment methods, e-wallets and cash on delivery were the most popular. E-wallets were popular in Austria, Germany, Greece, Italy, Portugal, and United Kingdom while cash on delivery was relatively often chosen by Russian, Polish, Greek, and Portuguese customers. The Latin America had a more diverse range of payment preferences while the Middle East and Africa were still dominated by cash payments[11].

Among all alternative payment methods, all over the world e-wallets are assumed to be the most popular ones (see Figure 3). Initially, a part of retail giants, such as Alipay (Alibaba) and PayPal (eBay) dominated the market. As the card providers recognised the market growth opportunity for e-wallets, they were developing their brands (V.me, MasterPass). Today they have to compete with

[11] *Your Global Guide…*, *op. cit.*, p. 7–19.

new market players who do not traditionally focus on payments, but they try to integrate technology with customers' everyday life. Multinational corporations, such as Apple with ApplePay, Samsung with Samsung Pay and Google with Android Pay are revolutionising the payment market.

Figure 3. The structure of global e-transaction payments in 2012 and 2014



	North America (2012)	North America (2014)	North America (2015)	EMEA (2012)	EMEA (2014)	EMEA (2015)	Latin America (2012)	Latin America (2014)	Latin America (2015)	Asia / Pacific (2012)	Asia / Pacific (2014)
Others	7	3	10	11	6	11	18	4	17	14	5
Bank transfers	1	7	7	6	17	17	13	9	5	14	12
Cash on Delivery	1	4	4	27	6	8	8	7	2	11	10
Direct Debit	2	1	1	3	1	0	4	0	0	1	0
E-wallet	18	14	19	9	20	20	10	5	11	23	30
Cards	71	71	59	47	50	44	47	75	65	37	43

Source: own work based on *Your Global Guide…, op. cit.*; *Global Payments Report Preview…, op. cit.*; *Global Payment Report. The Definitive Guide…, op. cit.*, p. 3.

Mobile devices will surely adopt and spread the modern technology increasing the potential for providers[12]. Additionally, they might be treated as a point of sales giving the opportunity to reach the customers anywhere. M-commerce strategies focused on the evolution from desktop to smartphones. The countries that drove this evolution were South Korea, Singapore, Hong Kong, United States and the United Kingdom. In mature markets, the m-commerce is just an extension to the traditional e-commerce, either via optimised sites or applications on smartphones[13].

The value and use of alternative payment methods are rising all over the world, but detailed data shows that it is not homogenous. Despite the development of traditional and innovative non-cash payments, cash is still dominant in many

[12] N. Mallat, *Exploring customer adoption of mobile payments – a qualitative study*, The Journal of Strategic Information Systems, Vol. 16, Issue 4, December 2007, p. 413–432.

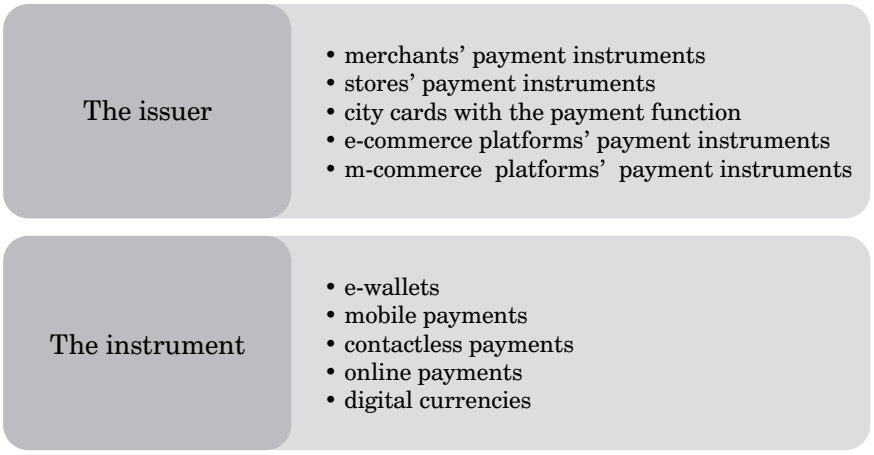
[13] *Global Payments report preview…, op. cit.*

regions[14]. Taking into account the described trends, sooner or later it will be replaced by non-cash payment instruments. Defining alternative payments and their taxonomy helps in understanding contemporary payments trends.

2. DEFINING ALTERNATIVE PAYMENTS AND THEIR TAXONOMY

Alternative payment methods (APM) are the subject of many papers and reports. However, there is still a lack of the clear, common definition. The definition of alternative payment methods can vary between sectors, countries and even by individual organisations. They are defined using two basic criteria – the subjective (the entity, the issuer) criterion and the objective (the instrument specification) criterion (see Figure 4).

Figure 4. The APM's division by basic criteria



Source: own work.

According to the first criterion, they are a part of alternative finance defined as instruments and distribution channels that emerge outside the traditional financial system. They are issued and provided by nonbank institutions[15]. According to such

[14] J. Harasim, M. Klimontowicz, *Payment Habits as a Determinant of Retail Payment Innovations Diffusion: the Case of Poland*, Journal of Innovation Management 2013, JIM 1, 2, p. 86–102.

[15] B. Zhang, P. Baeck, T. Ziegler, J. Bone, K. Garvey, *Pushing boundaries. The 2015 Alternative Finance Industry Report*, Cambridge Centre for Alternative Finance, University of Cambridge 2016; R. Wardrop, B. Zhang, R. Rau, M. Gray, *Moving Mainstream. The European Alternative Benchmarking Report*, University of Cambridge 2015, p. 9; Ch. Bradley, S. Burhouse, H. Gratton, Miller R.-A., *Alternative Financial Services: A Primer*, 2009, www.fdic.gov; R. Swagler, J. Burton, J.K. Lewis, *The Operations, Appeals and Costs of the Alternative Financial sector: Implications for Financial Counselors*, Association for Financial Counseling and Planning Education 1995, p. 93–98.

a classification, all payment instruments that are issued by nonbank institutions are thought to be alternative ones.

Basing on the second criterion, alternative payments are assumed to be payments other than traditional payment instruments. The example of this criterion's usage is the classification presented in WordPay report *Your Global Guide to Alternative Payments*[16]. WordPay defines the alternative payment instrument as the one that does not use a credit or debit card. It includes online (real time) and offline bank transfers, direct debits, e-wallet, cash on delivery, local card schemes, pre-pay and post-pay instruments, e-invoices and digital currencies. According to some reports, the check cashing should also be treated as an alternative payment method (see Table 2).

Table 2. The alternative payments' typology

Type of alternative payment	Characteristics	Example schemes
Bank transfers	Online (real time) bank transfers with immediate online authorisation via customers' bank. The settlement is usually done next day. Offline bank transfers are processed via the customer's online bank account – instead of being redirected during the transaction process, the customers are presented with a reference number, which they must then quote when logging in to an online bank account to make a payment. The customers can also choose to pay in a bank branch or via telephone banking, using the same reference number.	iDeal, eNets Sofort Banking, eNets, Przelewy24, SafetyPay PayU, Dineromail
Direct debits	A type of preauthorized payment under which an account holder authorises a bank to pay a fixed amount (such as mortgage payment or rent) or variable amounts (such as those called for in bills or invoices) directly to a landlord, bank, supplier or utility company at regular (usually monthly) intervals.	SEPA DD, ELV (Germany), Domiciliacion Bancaria (Spain)
Check cashing	A service that cashes private, government and paychecks without the necessity of having a bank account.	ACE Cash Express, Dolar Finacial Corporation

[16] *Your Global Guide…*, *op. cit.*

Tabela 2 cont.

Type of alternative payment	Characteristics	Example schemes
E-wallets	An online prepaid account where one can stock money, to be used when required. As it is a pre-loaded facility, consumers can buy a range of products without swiping a debit or credit card.	Alipay, V.me, Qiwi
Mobile payments	Transactions made or received with a mobile device. They are divided into two categories: direct carrier billing and mobile wallets.	Boku, MoPay, Zong, Zapp, SEQR, Znap (MPayME), Pingit, PayBox
Person-to-person (p2p) payments	Online technology that allows customers to transfer funds from their bank account or credit card to another individual's account via the Internet or a mobile phone. There are two general approaches for initiating payment: 1) users establish secure accounts with a trusted third- party vendor, designating their bank account or credit card information to be used to transfer and accept funds; 2) customers use an online interface or mobile application (developed by their bank or financial institution) to designate some funds to be transferred.	PayPal
Cash on delivery	A transaction in which payment for goods is made at the time of the delivery. Couriers collect payments when they deliver the goods.	Merchant and delivery company services
Local card schemes	Local card schemes, specific to certain markets, often operate like traditional cards. Some aremore sophisticated offering card and bank transfer options.	MisterCash (Belgium), UnionPay (China), Carte Bleue (France)
Pre-pay instruments	Cards or vouchers bought before starting a transaction. These cards are usually authorised immediately. Most pre-pay products have a funding limit, and some do not allow multiple cards/vouchers to fund one single transaction.	Astropay, Postepay, Swiff, uKash, Neosurf, Paysafecard, Toditocash

Tabela 2 cont.

Type of alternative payment	Characteristics	Example schemes
Post-pay instruments	After buying a product online, the payment is made at an affiliated outlet or store.	Konbini, Boleto Bancario, Multibanco
E-invoices	Payments after delivery without sharing credit card or bank details by entering the email address or postcode to make payment.	Klarna, Billmelater, Afterpay
Digital currencies	An Internet-based form of currency or medium of exchange that allows for instantaneous transactions and borderless transfer of ownership.	Bitcoin, Litecoin

Source: own work.

The Euro Banking Association (EBA) uses a combined attitude. The EBA market segmentation takes into account both the issuer of the payment instrument and the innovativeness of payments. As a result, the segmentation includes quite traditional, well-known payments issued by non-bank institutions and some innovative payment instruments issued by banks. It divides the alternative payment market into eight main segments: buyers and sellers payments, secure online banking schemes, non-bank and anonymous payments, low-cost point-of-sale acceptance, remittances, non-bank closed loop payments, person-to-person (p2p) payment schemes and crypto-currencies[17].

Buyer and sellers payments include online guaranteed payments made to complete purchase during the transaction on the Internet auction site. The parties of transaction usually do not know each other. The first and the most known solution has been invented and implemented by PayPal. As card acquiring for auction sellers were too complex, banks have lost as much as 25 percent of e-commerce turnover in several EU markets[18]. Today PayPal is a strong market player and competitor for traditional financial institutions developing business in other payment fields. It is now moving into face-to-face at the POS (PayPal's pilot in the UK) and has also invented the original 'wallet' concept with ACH funding backed up by card top-up.

The rapid growth of the e-commerce turnover and increasing number of non-bank payment service providers forced banks to be more active and innovative on the retail payment market and implement their solutions. Today banks have already

[17] *Next Generation Alternative Retail Payments…*, *op. cit.*, p. 4–6.
[18] *Ibidem*, p. 5.

offered competitive alternative payments using online banking applications, such as iDEAL in the Netherlands or MyBank, developed by EBA Clearing. They are usually ACH based alternatives.

Non-bank and anonymous payments enable consumers to convert cash to electronic value using pre-numbered vouchers, sold at the POS, which can be entered online and used for e-commerce transactions. Such products are mostly used by un- or underbanked customers and are also used anonymously for gambling and gaming. No bank-led, credible alternatives have been identified so far.

Low-cost POS acceptance was created in Germany almost 20 years ago. It is a direct debit based on ACH called ELV that also offers authorisation and payments guarantee options matching card functionality.

Other traditional alternative payment services are remittance payments (e.g. the Western Union and Moneygram). These cross-border transfers now enable cash to cash, account to cash and increasingly account to account transfers and payments.

The next alternative payments' segment consists of payments launched by many non-bank innovators, often using QR code, HFL and other developing technologies for acceptance that are linked to proprietary non-bank wallets and operate as closed loop card schemes (e.g. SEQRwallet).

One of the mobile-based alternative payment methods is person-to-person (P2P) payment scheme (e.g. Pingit, Zapp, Paym and Swish). P2P payments are thought to be a change driver of the market. There are two approaches for initiating payments. The first approach assumes that users establish secure accounts with a trusted third-party vendor, designating their bank account or credit card information to be used to transfer and accept funds. Using the third party's website or mobile application, individuals can complete the process of sending or receiving funds. They are identified by their email address and can send funds to anyone who is a member of the network. In the second approach, customers use an online interface or mobile application (developed by their bank or financial institution) to designate some funds to be transferred. The recipient is designated by their email address or phone number. Once the sender has initiated the transfer, the recipient then receives a notification to use the online interface to input his or her bank account information and routeing number to accept the transfer of funds. In this method, recipients do not need to have an account with the financial institution of the sender to receive a moneytransfer.

The last segment of alternative payments includes new currencies designed to displace traditional cash and electronic money, such as Bitcoin and others. At this stage, the application and success of these new payment methods are unclear.

The variety of payment instruments and attitudes towards the way of defining them caused the necessity to work on commonly accepted definition. According to authors defining APM should be based on payment instrument innovativeness.

As a result, traditional credit transfer, direct debit and a card-based instrument should not be treated as alternative payment instruments, similarly as cash and cheques. The innovativeness of payment instrument should include both the instruments specification and the user's experience. Such perspective leads to defining ATM as those payments that deliver specific, exceptional value for customers concerning payments' speed, convenience and safety, such as online payments, mobile payments, contactless payments (based on cards and mobile technology), e-wallets and digital currencies.

3. THE RISK OF FRAUDS OF ALTERNATIVE PAYMENTS' DEVELOPMENT

Alternative payment methods, as a new business, also bring with it new risks and threats. Most of them result from their diversity and a lack of common, cohesive standards. The different types of alternative payment methods incorporate different kinds of fraud risks (see Table 3)[19]. The lack of chargeback monitoring program and security requirements make providing the overall characteristic of APM risks and threats difficult[20].

Table 3. The characteristic of frauds related to APM

Type of frauds	Characteristic
Phishing	Scams used to drain accounts. The fraudulent practice of sending emails that look like correspondence from reputable companies to induce individuals to reveal personal information, such as passwords and credit card numbers.
Goods' wheedling	The shopper fraud consisting of clearing the account after the payment authorisation. It does not enable the settlement but enables dispatching goods.

[19] Other risks connected with providers of these instruments are: data security risk, operational risk, liquidity risk, credit risk, compliance risk etc. – N. Chande, *A Survey and Risk Analysis of Selected Non-Bank Retail Payments Systems*, Bank of Canada Discussion Paper 2008-17, November 2008; J. Harasim, *Współczesny rynek płatności detalicznych – specyfika, regulacje*, innowacje Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach, Katowice 2013.

[20] M. Braun, J. McAndrews, W. Roberds, R. Sullivan, *Understanding Risk Management in Emerging Retail Payments*, RBNY Economic Policy Review / September 2008, p. 137–159; *Optimising your Payments: a Global View*, London 2012, p. 16.

Tabela 3 cont.

Type of frauds	Characteristic
"keylogger" software	A type of surveillance software (considered to be either software or spyware) that has the capability to record every keystroke made to a log file, usually encrypted. It can record instant messages, e-mail, and any information typed at any time using the keyboard.
Malicious software (Malware)	It means any software that brings harm to a computer system. Malware can be in the form of worms, viruses, trojans, spyware, adware and rootkits which steal protected data, delete documents or add software not approved by a user. They are distributed by malicious links and websites posted to online social networks to redirect the victim to "command and control" (C&C) server to join a botnet allowing the attacker to execute arbitrary commands and exfiltrate personal information from the device.
Partner risk	The risk that results from choosing and allowing to access bank account to the unreliable service provider.
DBOD risk	The risk is driven by an own device that results from the lack of antivirus and antispam software.

Source: own work based on *Optimising your Payments: a Global View*, London 2012, s. 16; *Security and the Internet of Things in a Self-service Banking Environment*, Diebold Nixdorf Webinar 2016, http://www.atmmarketplace.com/whitepapers/live-webinar-security-and-the-internet-of-things-in-a-self-service-banking-environment [27.11.2016].

Different threats exist by payment types what makes their identification, tracking, and management difficult. As a result, choosing experienced partners becomes more and more crucial to defend against a fraud. A fraud may happen on a large scale because of a data security breach at a payment provider or party that stores payment information anywhere along the payment chain. Massive data security breaches can occur anywhere along the payment chain, but fraudsters are likely to target the points at which data security is the weakest. Inadequate security at a non-bank service provider puts end users at risk of a fraud. Although non-banks are not more or less susceptible to a data breach than banks are, the presence of multiple providers may complicate efforts to ensure adequate security at every step of the payment chain[21]. All payment service providers should offer flexible and customised fraud rules to be set by payment and service

[21] *Non-banks in retail payments*, Bank for International Settlements Committee of Payments and Market Infrastructure 2014, www.bis.org, p. 23–25.

types. Additionally, access to proprietary blacklists should be an advantage in the fight against alternative payment frauds[22]. Security programs should consist of three components, each delivering protection against inherent system exploits and vulnerabilities and various forms of malware attacks. The first one is access protection. It includes self-service security governance and hardening to the Microsoft operating systems based on the safety, industry and self-service best practices. They include payment card industry's data security standard (PCI DSS), SANS Institute training and certification, The National Institute of Standards and Technology (NIST) cybersecurity framework, The Federal Financial Institutions Examination Council (FFIEC) supervision and cyber security assessment tool or ATM Industry Association (ATMIA) initiatives. Most of them are aware of the fact that consumers are increasingly vulnerable[23]. The second component is intrusion protection against all forms of malware, unauthorised uses of and access to system resources as software services, memory, registry, file system, communication or devices. The last part of the security program is hard disk encryption. It delivers protection to all contents on the self-service terminal's hard disk from booting via unauthorised mediums (CD-ROM, USB sticks) and from access if removed from the original self-service environment[24].

4. PREREQUISITES FOR FUTURE DEVELOPMENT OF ALTERNATIVE PAYMENTS

Making the further development of alternative payments possible requires determining key factors that may influence the scope of their usage. The alternative payment market is increasing in value, volume, and also in breadth. Today payments are just a part of a strategy based on delivering the added value, enriching customers' lives and delighting them during shopping experience. It is supported by the fast development of immediate payments that are a potential alternative for cash payments[25]. The foundation for market success must incorporate the following pillars[26]:

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22 *Optimising your Payments…*, *op. cit.*, p. 16.

23 M. Coetzee, *Advanced biometric technology: Reinforcing security within payment systems*, Journal of Payment Strategy and Systems 2013, Vol. 7, No. 1, p. 77; R.J. Sullivan, *Risk Management and Nonbank Participation in the U.S. Retail Payments System*, Federal Reserve Bank of Kansas City Economic Review 2007, Second Quarter, p. 5–40.

24 *Security and the Internet…*, *op. cit.*

25 An immediate payment system is an irrevocable account-to-account payments transfer service that is available 24x7x365 and makes funds available to the beneficiary within seconds with an instant confirmation message to both the payer and the payee, see: *World Payment Report 2016*, Capgemini, www.capgemini.com [15.09.2016], p. 5.

26 *Global Payments Report Preview…*, *op. cit.*, p. 22.

- ❖ continuity of convenience – no need to enter card details repeatedly,
- ❖ reach (scale) – a payment method that enables making payments in most places,
- ❖ omnichannel – the ability to use APMs across all environments, such as in-store, online, and in-app,
- ❖ personalisation and loyalty – loyalty schemes and delivery preferences should be updated automatically, and in real-time,
- ❖ ensured security.

According to EBA Working Group, among customers and merchants' requirements, the most important are: simplicity (the ease of the use), mobility (availability everywhere), low costs, safety and security, real-time immediacy, convenience, anonymity, flexibility and choice, preference specialisation and adequate redress processes[27].

The payments must be matched to the purchase process. The key components of any face-to-face or e-commerce transaction will surely be the mobile, tablet and wallet technology. The customer payments process, as a part of the value chain, must reflect sophisticated customisation from the payment initiation util settlement. The payment will become embedded, if not invisible, and will not be a final exit point of a transaction any longer.

According to EBA[28], in the nearest future consumers will develop improved perception of mobile security but may still limit their use of wallets to a small number of trusted schemes, banks, and merchants. The traditional differences between the card, ACH and other forms of payment will be reduced over time. Mobile payment users may no longer perceive the debit card as a logical route into the current account. Many consumers will prefer direct access to their accounts and P2P type payments. Such preferences are especially probable in the young generation target group. Younger consumers brought up on Amazon and iTunes' one-click processes will be at the forefront of demands for easy and fast payments. Using the mobile technology has already become a lifestyle. It helps to choose products and merchants, receive references from friends, take up offers. Even if the payment is a fundamental pillar of the process, all actions and activities that happen before the transaction will be more important. Geolocation, data analysis, and social media use will be used to project the loyalty offers. Payments will evolve to support omnichannel requirements with no visible differences between the mobile, point-of-sale and online purchase.

The changes in the payment paradigm will probably be a challenge for banks as they may lose relationships and some revenues. Many of them treat payments like a traditional domain and have not precisely recognised the gap between

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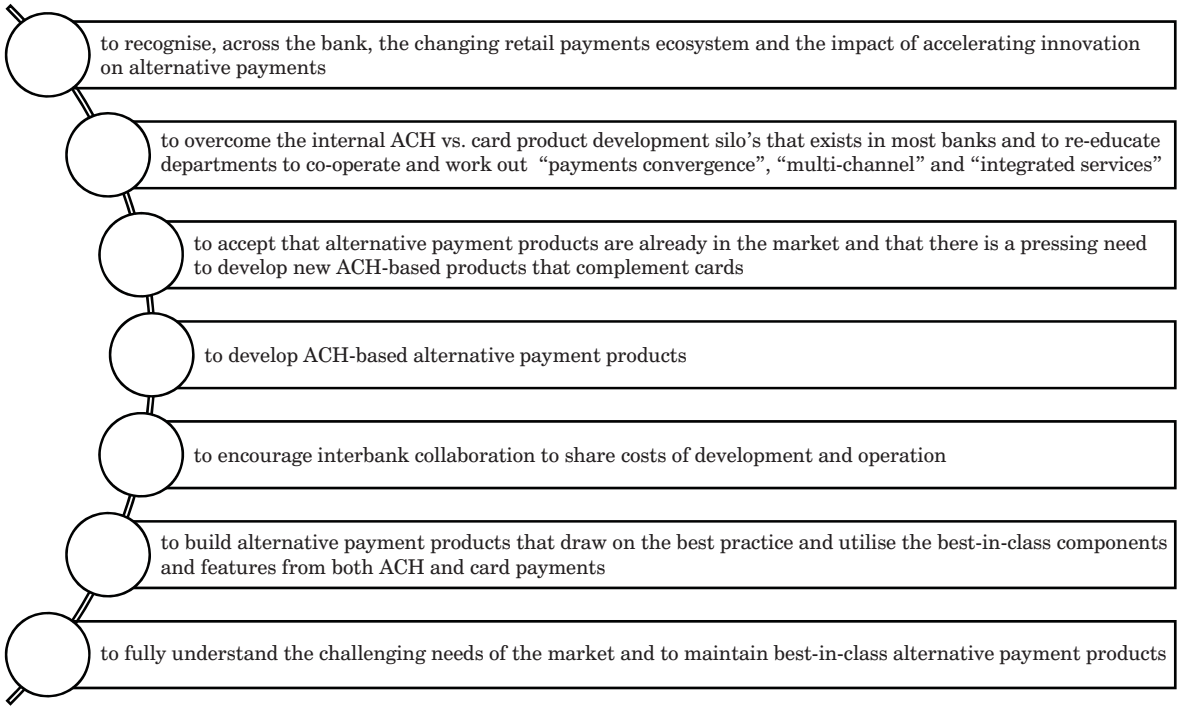
[27] *Alternative Retail Payments: Infrastructure Requirements*, EBA Working Group on Electronic Alternative Payments 2014, p. 6–7.

[28] *Ibidem*, p. 7–8.

their product functionality and the non-banks' payment offer. Maintaining thecompetitive advantage in this field will require managing key challenges connected with alternative payment methods (see Figure 5).

Figure 5. The challenges for banks of the alternative payments' development



Source: own work based on *Alternative Retail Payments…*, *op. cit.*

Fortunately for banks, the alternative payment sector is still highly fractured among many different providers[29]. Not all new market players will be successful on the market, but banks should be aware of payment trends and make some efforts to match their offer with the customer's needs and expectations.

CONCLUSION

Alternative payment methods are spreading all over the world. This process is supported by the development of the network economy. The most significant driver of all changes in the contemporary economy is the new technology. It has influenced not only the commerce but also social behaviours and consumers'

[29] M. Evans, *Alternative Payment Providers Disrupting the Payment Landscape*, ATM, Debit & Prepaid Forum 2012, Euromonitor International Market Research Group.

lifestyle. As a result, one of the faster-growing markets is the e-commerce. The companies' interests are focused on the value delivery and enhancing purchase pleasure from the very beginning of transaction util the aftersales service. As a result, new payment methods are developed as a part of the value chain. They are expected to be convenient, fast and cheap. The EBA forecast predicts that they become invisible for customers who expect "one-click" initiation and acceptance of payment. Despite that, they will be still one of the most important pillars of the retail transactions.

Today APMs are at the initial stage of their development. Additionally, the term APM is still not clearly defined. APMs classification uses different criteria: objective, subjective or combined ones. The proposed definition has changed those paradigms and has focused on payments' innovativeness and their ability to fulfil customers' expectations. The lack of homogenous taxonomy makes the assessment of the stage of APMs development difficult.

Even if currently the alternative payments are not competition for cash payments, and they are not used to the same extent in different regions of the world, they will surely be more and more popular in the nearest future. Their reach and usage are supported by opening up the market for new players and entering the market by new generation customers who are active users of the Internet and mobile technology.

Payment service providers have already noticed the increasing market potential. Even traditional ones, such as bank and card issuers have perceived the competition of non-bank players, such as EMIs, PIs and TPPs. Some of them have successfully implemented their solutions. The others must undertake an action aimed at following the market trends and matching customers' needs and expectations.

Undoubtedly, the future of retail payments is connected with the mobile and e-wallet technology, but it is not clear which of the bank and non-bank payment providers will be among the largest market players in the next few decades.

The development of alternative payment methods incorporates a different kind of risk. The successful risk management requires implementing security programs. They should include components focused on access protection, intrusion protection, and hard disk encryption.

Abstract

Alternative payment methods become more and more popular among customers. Today, there is over 300 alternative payment schemes and more than 200 alternative payment methods what makes understanding the alternative payments difficult. Today APMs are the initial stage of their development. Despite

the growing interest in alternative payment methods and instruments, there is still a lack of commonly accepted definition and precise market data.

The purpose of the paper is to identify the alternative payment methods, provide their taxonomy, assess their development and describe associated risks of frauds. The review of APMs classification shows that they use different criteria: objective, subjective or combined. The paper proposes the definition that has changed those paradigms and has focused on payments' innovativeness and their ability to fulfil customers' expectations. The lack of homogenous taxonomy makes the assessment of the stage of APMs development difficult, but the paper presents the probe of such assessment based on the data of APMs usage in different regions of the world. The paper also identify frauds and threats related to APM: phishing, goods wheedling, keylogger software, malicious software, partner and DBOD risks. In the final part it discusses the factors influencing APMs further development such as new regulations, developing multichannel platforms and new business models, changes in consumer behaviour and concerns about the security. The results of the study are based on the critical analysis of available, not extensive existing literature regarding alternative financial services (including payments), statistical data of research companies and institutions altogether with consultancy firms' reports.

Key words: alternative payments, payment innovations, third-party providers, payment risks, payment habits

References

Alternative Payments Pick 'n' mix An overview of alternative payments in the global marketplace, 2016, www.ecommera.com.

Alternative Retail Payments: Infrastructure Requirements, EBA Working Group on Electronic Alternative Payments 2014.

Bradley Ch., Burhouse S., Gratton H., Miller R.-A., *Alternative Financial Services: A Primer* 2009, www.fdic.gov.

Braun M., McAndrews J., Roberds W., Sullivan R., *Understanding Risk Management in Emerging Retail Payments*, RBNY Economic Policy Review / September 2008.

Chande N., *A Survey and Risk Analysis of Selected Non-Bank Retail Payments Systems*, Bank of Canada Discussion Paper 2008-17, November 2008.

Cichorska J., Klimontowicz M., *Financialisation as a result of network economy's development*, Internet Quarterly „e-Finanse" 2016, Vol. 13/ No. 2.

Coetzee M., *Advanced biometric technology: Reinforcing security within payment systems*, Journal of Payment Strategy and Systems 2013, Vol. 7, No. 1

Digital transformation in 10 building blocks to boost customer experience and ROE, EFMA i McKinsey&Company, October 2012.

Directive (EU) 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC (Text with EEA relevance), http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32009L0110 [5.04.2017].

Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC, http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32015L2366&from=EN [29.03.2017].

Evans M., *Alternative Payment Providers Disrupting the Payment Landscape*, ATM, Debit & Prepaid Forum 2012, Euromonitor International Market Research Group.

Global Payments Report Preview. Your Definitive Guide to The World of Online Payments, November, London 2015.

Global Payment Report. The Definitive Guide to The World of Online Payments, November, London 2016.

Harasim J., *The Contemporary Market of Retail Payments – the Specificity, Regulations, Innovations*, Publishing House of the University of Economics in Katowice, Katowice 2013.

Harasim J., Klimontowicz M., *Payment Habits as a Determinant of Retail Payment Innovations Diffusion: the Case of Poland*, Journal of Innovation Management 2013, JIM 1, 2.

Mallat N., *Exploring customer adoption of mobile payments – a qualitative study*, The Journal of Strategic Information Systems, Vol. 16, Issue 4, December 2007.

Next Generation Alternative Retail Payments: User Requirements, EBA Working Group on Electronic Alternative Payments 2014, Washington D.C.

Non-banks in retail payments, Bank for International Settlements Committee of Payments and Market Infrastructure 2014, http://www.bis.org/cpmi/publ/d118.pdf.

Optimising your Payments: a Global View, London 2012.

Patel K., Delen M., *Payments Systems Survey 2009: Executive Summary*, Capgemini 2009.

Security and the Internet of Things in a Self-service Banking Environment, Diebold Nixdorf Webinar 2016, http://www.atmmarketplace.com/whitepapers/live-webinar-security-and-the-internet-of-things-in-a-self-service-banking-environment [27.11.2016],

Sullivan R.J., *Risk Management and Nonbank Participation in the U.S. Retail Payments System,* Federal Reserve Bank Of Kansas City Economic Review 2007, Second Quarter.

Sullivan R.J., Wang Z., *Nonbanks in the Payments System: Innovation, Competition and Risk – A Conference Summary,* Federal Reserve Board of Kansas City, Economic Review 2007, No. 3, Kansas City M.O.

Swagler R., Burton J., Lewis J.K., *The Operations, Appeals and Costs of the Alternative Financial sector: Implications for Financial Counselors*, Association for Financial Counseling and Planning Education 1995.

Wardrop R., Zhang B., Rau R., Gray M., *Moving Mainstream. The European Alternative Benchmarking Report*, University of Cambridge 2015.

World Payment Report 2016, Capgemini, www.capgemini.com [15.09.2016].

Your Global Guide to Alternative Payments, London 2014.

Zhang B., Baeck P., Ziegler T., Bone J., Garvey K., *Pushing boundaries. The 2015 Alternative Finance Industry Report*, Cambridge Centre for Alternative Finance, University of Cambridge 2016.