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THE DOMINANT IDEAS IN THE DEVELOPMENT OF INTERNATIONAL E-MONEY SYSTEMS

***Abstract**: The structural changes in international markets of payment services lead to the creation of new forms and models of payment tools including e-money systems. In spite of a large number of scientific and analytic works devoted to the e-money issues the fast modifiability inherent to this type of payment creates the necessity to investigate constantly the changes and identify the dominants of their further development. These issues are especially relevant for national and international authorities in order to understand what type of challenges banking and financial systems face and be ready to make corresponding contributions. The author outlined and analysed the key new directions in transformation of international e-money systems (IEMS) such as advent of "mobile based e-money systems", shifts in key principles of customer due diligence procedures, growing demand for cooperation between market operators, etc. There is also a new challenge for modern international e-money systems: to provide effective means of fundraising for business, especially it is on the agenda for small and medium-size companies. The new form of investment generated through IEMS has been already named as "e-financing".*

***Keywords:** international e-money systems (IEMS), e-money, mobile based e-money, mobile network operators (MNOs), card-based e-money, server-based e-money, software/network e-money, e-finance.*

JEL: F 39, F 21, F 30

Introduction

The scholarly dispute that has developed around the electronic money (EM) mainly concerns the theoretical aspects: a conceptual understanding, classification and systemisation of money tools in circulation, and their possible impact on money circulation and global financial system as a whole. It is commonly known that an advent of e-money was a logical outcome of the historical development in currency circulation, which is gradually moving towards the replacement of commodity money that have its own cost to the signs of such value. The precondition of

the modern concept of e-money was the process of computerisation of social development, which predetermined the next stage of evolution of the concept of money as "the transition from analog to digital form on the informational stage of money development".

Currently the researches in the sphere of regulations of e-money circulation are attaining the relevance, in particular, great importance is attaching to the issues of legal and administrative regulation of issuers. Among the economists, developing e-money problem, such scholars should be noted as Kochergin D.A. [1], Connel Fullenkamp and Saleh M. Nsouli [2], Genkin A.S. [3], Frazer P. A. T. [4], Levent V. Orman [5], Egiazaryan Sh.P. [6], Solomon E. H. [7], Sirotin I.S. [8] etc.. In their publications, there are described the peculiarities of e-money circulation; the experience of some international institutes in the sphere of e-money market regulations are systemised and analysed; weaknesses and contradictions in the methodical approaches of qualitative characteristics of e-money are identified on the basis of analysis of existing international systems. However, questions related to the development of international e-money systems in the emerging economies in the context of generalization of international governance and regulation process are still less studied.

There are traced two typical directions in the development of international e-money systems (IEMS). First, it is qualitative changes in international systems, serving the markets of developed countries where certain infrastructure platforms and business models of e-commerce for different categories of large, small and medium-sized businesses as well as for individuals have been already formed. In these countries the process of formation of international-money systems has led to the shift in consumer preferences and development of a wide range of innovative services in this field, and it served as a basis for formation of new approaches to e-money market regulation.

Second, in the emerging economies the process of formation of international e-money system has not reached the critical quantitative indexes, and therefore a steady rising tendency of users of simple business models of electronic payments based on the adaptation of international counterparts remains unchanged.

Leendert Bottelberghs, the Senior Consultant of "Innopay" in online-payment, e-invoicing and e-identity sphere, notes that existing payment infrastructures in the emerging economies, as a rule, tend to be undeveloped and used a little [9]. According to the author, it is clarified for the following reasons. First of all, in these countries a very huge amount of cash is concentrated in money circulation due to a limited access to banking services and mistrust in the financial system. The main alternative to the movement of cash are cashless settlements which transactions presume screening and identification of actions by the way of electronic processing (or just partially) and cannot be regarded as an effective and safe method of payment. The author considers as another constraining factor the specifics of payment services with electronic channels, such as the Internet and mobile payments, whereas they are often mono-banking solutions offered as additional services to existing customers. Banks in the field of e-payments basically offer payment services to a broad user,

while interbank operations are carried out only for a limited number of clients and it is very rare. Third, usually in each country the number of operators of IEMS working on the payment market is significantly less than the number of commercial banks, providing similar services.

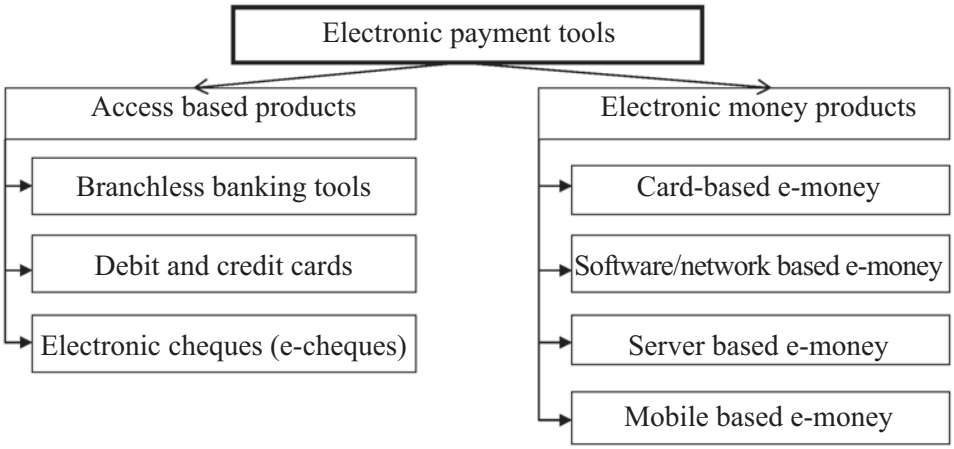
Creation of New Tools in the IEMS

In developed countries the IEMS market has reached a much higher level of development. This is confirmed not only by statistical data and indexes but also by conceptual categories which are a household word "in the West"; however, the trend has not found its reflection in our lives or in the scientific literature. For example, according to the leading Russian specialist in the field of e-money D. A. Kochergin [1], depending on the carrier of script[1] e-money is divided into three main types: 1) card-based e- money; 2) software / network based e-money; 3) server based e-money.

However, today, in advanced countries, especially in Asia, electronic scripts recorded on mobile telecommunication devices (mobile phones) enjoy an increasing popularity. Consequently, we can talk about new a type of electronic money product – mobile based e-money (Fig. 1).

Fig. 1.

The classification of modern electronic payment tools



Source: own work partly based on [1]

Dynamic technical innovations in the service sector of e-money constantly create challenges for national and international regulatory authorities, while active involvement of the telecommunication sector especially complicates these tasks. For instance, while the regulation of the financial market in the emerging economies has a long history and is institutionally developed, the regulation of the

[1] E-script is a special data file that contains unique information number and indicates the amount of cash value, which is put to the owner. It acts as a means of payment in the calculation of e-money [14].

telecommunications market is in most cases at an early stage of development. As for mobile financial services, the cooperation between regulatory authorities is not perfect and many questions remain unclear for practitioners.

Studies show that in developing countries the market segment of consumers of mobile networks (MNOs) is significantly higher than that of consumers of banking services: only 20% – 30% of the population have bank accounts, while more than 80% of them have mobile phones [9]. Obviously, the MNOs have an easier access to the market, as they already have contacts to customers and can offer them additional services. Besides, MNOs can control SIM of phones and mobile network. In the long term, huge potential for banks lies in the sphere of usage of mobile communications infrastructure to provide both basic and advanced financial services in mobile banking sphere. In today's digital economy the usage of mobile payments determines the future of money. A new report by Juniper Research has found that the value of global payments via mobile devices will have reached around $507 billion by the end of 2014, showing a rise of nearly 40% year-on-year [10].

Dynamics of mobile banking development in the United States confirms the potential of this direction. According to the results of experts' research of "Innopay" mobile sales of trips to the United States, including tourist purchases based on tablets and smartphones, totalled more than 16,360 million in 2013 and increased by 59.8% in comparison with the previous year. This year, taking into account trends formed in the market, it is expected that the increase of sales could reach $ 26,140. [11] According to the company's data during 2013 and 2018 period, it is expected that the cumulative growth rate of annual mobile sales will be about 31.7%; it is forecast that by 2018 sales of tourism products will increase to $ 64,690 per year. In addition, e-marketers believe that in 2014 in the U.S. about 18% of all digital sales of travel documents, which also include orders done on personal computers and laptops, will account for mobile sales trips. By 2018, the share of Mobile will increase to 37% of total sales through e-money system. In addition, the report notes that digital sales of travel as a category of more mature products than in other areas of e-commerce will increase [11].

New Approaches to the IEMS Regulation

It was the massive investigation of electronic money payment system in economically advanced countries that determined the need to develop the new instruments of regulation in electronic money security. In particular, the new Directive on payment services in the EU (PSD2) for customer due diligence (CDD) in electronic money system [12] were developed. As for the customer database (CDD), compliance with the third EU Directive on money legalisation (AML3) is the most important condition for payments. These EU Directives must be integrated into national law by all member states, but they are free to implement more severe rules than those prescribed by the Directives. This integration process always leads to small differences in interpretation between some countries, although the main aims of the

Law remain the same throughout Europe. Nevertheless, it complicates the process of meeting all the requirements laid down in the Directive within the EU.

AML3 Directive points out that in situations where customers are not physically present in the transaction, the service provider must comply with the requirements of the so-called "Enhanced Due Diligence" (EDD) in addition to regulatory measures of customer due diligence (CDD). To fulfil the EDD, one or several of these three precautions should be followed by the service provider:

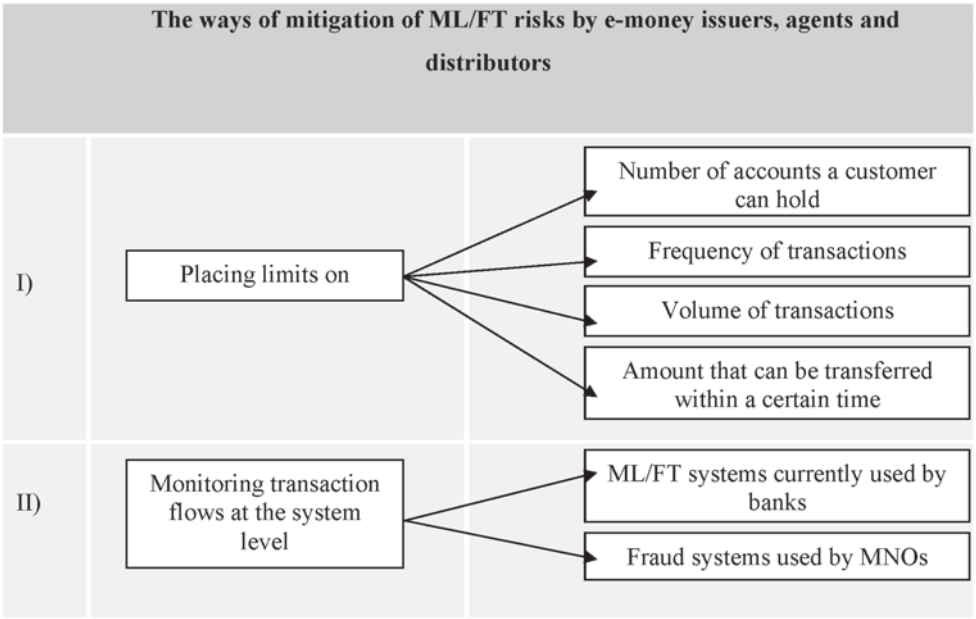
1. Ensuring the process of customer identity is based on additional information or documents.
2. The extra measures of verifying the information or identity documents must be proved on certification of the credit or financial institution, considering requirements of the valid Directive.
3. Ensuring that the first payment of the operations be carried out through an account opened on behalf of the customer by a credit institution.

Some policymakers fear that electronic money products could increase the risk of money laundering (ML) and the financing of terrorism (FT) by making it easier to transfer funds instantly over long distances. For instance, there is a particular concern that due to the rapid growth of this sector in recent years and a large number of new entrants, (only in the UK there are now 53 firms registered on the e-money Financial Services Register, 43% of which were authorised in the last 2013 year) that AML systems and controls are weak [13].

The main concern of authorities that the business model used by many e-money issuers involves outsourcing the provision of the underlying value of e-money to third parties, which is then transferred to the recipient merchant or consumer, meaning that many e-money issuers do not have oversight of the entire transaction (although they maintain the responsibility for AML controls). This makes the identification of both the parties involved and any suspicious behaviour particularly difficult. In addition, the ability to create multiple anonymous electronic "purses" ensures that a high volume of transactions can be conducted on a daily basis, potentially allowing substantial sums to be laundered without the need to physically convert the funds into cash and without the need to disclose the identity of the account holder. This is in contrast to how regular bank accounts are operated [13].

At the same time, telecommunication developers (e.g. GSM Association) claim that, for example, well-designed mobile money schemes with proper safeguards, however, may help reduce ML and FT risks by converting more informal transactions into electronic transactions, which can be monitored and traced more easily than cash [14]. Generally, they propose two main directions for mitigation of this type of risks: by setting certain limits on the transactions and by monitoring money flow for detecting some fraud vulnerable patterns (Fig. 2).

Fig.2



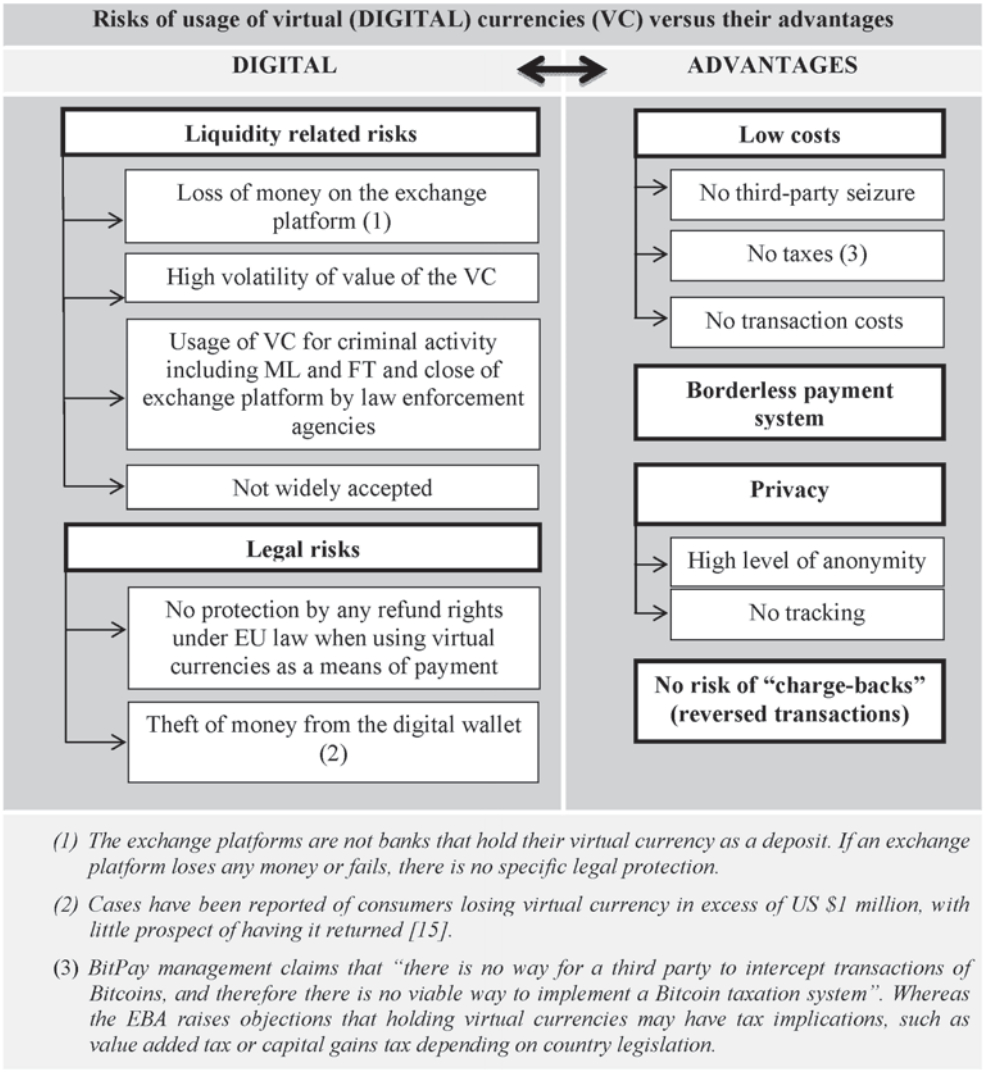
Source: own work based on [13], [14].

This approach, according to experts, will enable service providers to serve their customers in a friendly manner and more effectively in countries where these techniques are applied.

Digital (virtual) Currencies: low costs and privacy versus risk

As of today, so-called "digital or virtual currency", a type of electronic money, makes progress. A virtual currency is a form of unregulated digital money that is not issued or guaranteed by a central bank and that can act as means of payment [15]. Virtual currencies have come in many forms, beginning as currencies within online computer gaming environments and social networks, and developing into means of payment accepted 'offline' or in 'real life'. It is now increasingly possible to use virtual currencies as a means to pay for goods and services with retailers, restaurants and entertainment venues. These transactions often do not incur any fees or charges, and do not involve a bank. Although the effectiveness of its participation in the international monetary system is the subject of constant debate, including scientific disputes, however, the fact is that some of these currencies have reached a certain level of popularity, and their issuers considered to be quite successful.

Fig. 3



Source: own study partly based on [15, 16].

For example, the American bitcoin[2] processing company BitPay notes out that they process about $1 million a day of bitcoin payments for more than 30,000 suppliers; 50% of that are in the U.S., 30% in Europe and 20% in the rest of the world [16]. There are WordPress, TigerDirect and Shopify among their clients. In addition

[2] Bitcoin – is a payment system introduced as open-source software in 2009 by developer Satoshi Nakamoto. The payments in the system are recorded in a public ledger using its own unit of account, which is also called bitcoin. Payments work peer-to-peer without a central repository or single administrator, which has led the US Treasury to call bitcoin a decentralized virtual currency. Although its status as a currency is disputed, media reports often refer to bitcoin as a cryptocurrency or digital currency. (Source: Available at: http://en.wikipedia.org/wiki/Bitcoin)

to BitPay's core merchant acquiring products, the company is also developing open source projects around Bitcoin such as Bitcore, Insight, and Copay. The BitPay co-founders claim that their IEMS has several advantages in comparison with other existing payment technologies (credit cards, for example): "Bitcoin was designed for the Internet age, offering companies a lower-cost, lower-risk alternative" [16]. But it is worth mentioning that, for instance, European authorities do not share so high opinion especially regarding to "low risk". Recently the European Banking Authority (EBA) even published a report *"Warning to consumers on virtual currencies"* [15], where the detailed analysis of usage of bitcoin and other currencies was represented. Mainly the virtual currencies are blamed for liquidity risks and absence of buyer protection rights as well as some other vulnerabilities (Fig. 3).

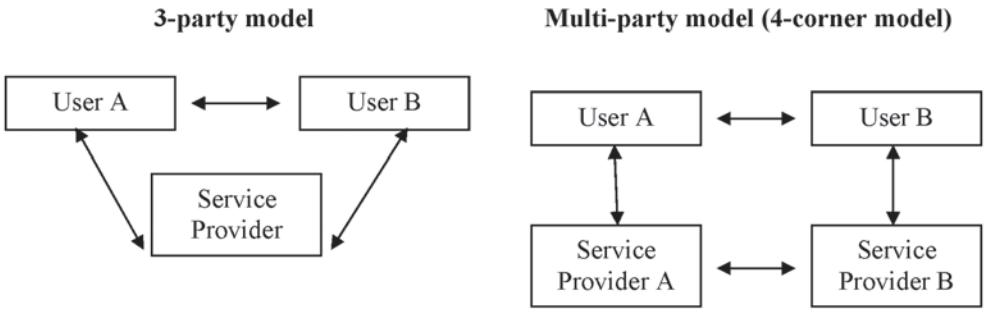
Competition versus Cooperation on the IEMS Market

The analysis of the IEMS market shows a tendency of a wide range of e-products creation and the increasing level of competition for customers sometimes resulting even in replacing the weaker systems with the stronger ones.

In the same time, some analysts argue that cooperation between different e-money systems can bring valuable benefits. For instance, according to Jaap Jan Nienhuis [17], in the current conditions in the global EM market the service providers can use three-party model (e.g. PayPal) or four-party model (e.g. Visa/Mastercard) (Fig. 4).

Fig. 4

Types of models



The more complicated is the quadripartite model, which involves more parties in the delivery of services; the interaction between them is provided through certain technical processes and built upon a set of rules ensuring the reduction of commercial risks. However, according to Innopay [17] practitioners, such a model is attractive from a market perspective, because each side of the market can choose its own service provider, and is not limited by their own service provider. But as mentioned above multi-party model is a grand challenge and needs the high level of collaboration and development of effective "scheme", creating a set of rules, operating procedures, interaction models and potentially technical facilities to establish multi-lateral interaction between all service providers involved.

E-invoicing

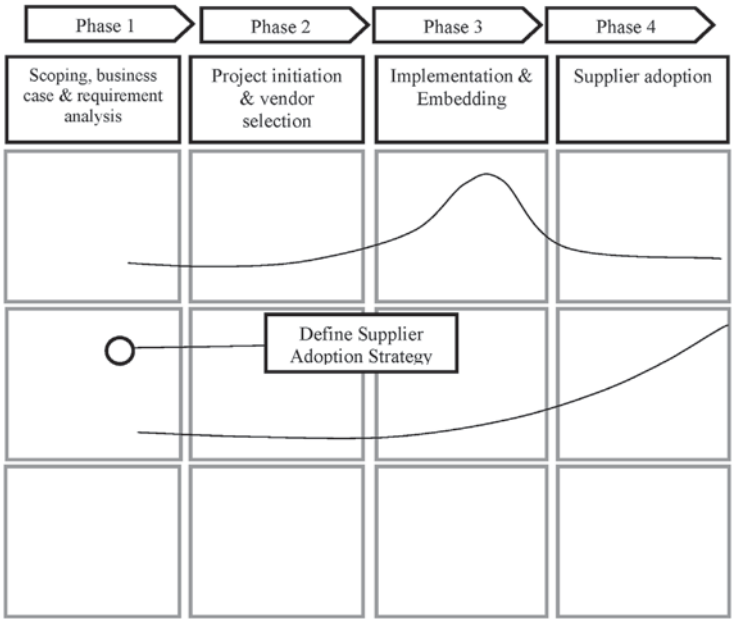
Corporations in various industries, according to international practice, while making decisions about strategy of electronic sales through IEMS, pay extra attention to the implementation of the system of issuing electronic invoices (e-invoicing). Electronic invoicing – e-Invoicing – is an electronic transfer of invoicing information (billing and payment) between business partners (supplier and buyer). It is an essential part of an efficient financial supply chain and it links the internal processes of enterprises to the payment systems.

According to one of the experts in the field of electronic payment system Jaap Jan Nienhuis [18], corporates take the lead in guiding their supply chain partners towards more efficient and dematerialised supply chain processes. The successfully lined digital ways of money transformation provide significant benefits to companies, but they are facing the problems of income capitalization in their supply flow. So, these problems differ depending on the corporation "phase of the digital transformation" (Fig. 5).

Jaap Jan Nienhuis also claims that the key to maximise the return on investment (ROI) and minimise the breakeven time of digital transformation projects (i.e., realisation and installation of e-invoicing) is to ensure high supplier adoption rates in phase 4 [18]. However, the results of the GLENBROOK research laid out in report of the 2010 [19] showed that less than 20% of corporates are successful in achieving adoption rates higher than 40% of total invoice volume.

Fig. 5

The phases of additional value formation in the digital transformation projects



Source: [14].

Therefore, in emerging economies it is important for IEMS developers to consider the so-called four imperatives of the system efficiency:

1. Involve all providers from the start of a "chain" and pursue a different adoption strategy for distinct categories of suppliers.
2. Provide own suppliers with various liquidity management mechanisms and additional value services to convince them with the benefits of the certain IEMS's platform.
3. Embrace interoperability: allow the supplier to use his own service provider to deliver invoices to the IEMS's service provider, rather than requiring the supplier to be on-boarded on own platform.
4. Consider the cost of onboarding per supplier: direct cost, possibility of supporting the different onboarding, necessity of adoption of processes, or availability of option to continue operations without disruptions [18].

For instance, one of the leaders of the IEMS market, PayPal proposes to its clients Online Invoicing making sending professional invoices "safer, faster and easier for any business and be paid online, without the need for a website". Also, the authorities in many countries consider e-invoicing as a benefit of "parsimony". Thus, on 26 June 2013, the European Commission proposed a draft directive on e-invoicing in public procurement, accompanied by a communication setting out its vision for the full digitisation of the public procurement process, so-called "end-to-end e-procurement". Besides, the ongoing creation of Single Euro Payment Area (SEPA) offers an ideal launching pad for a successful European e-invoicing initiative with the savings estimated at around EUR 64,5 billion per year for businesses [20].

E-finance as a Promising Direction of Further IEMS Development

Over the years, a wide adoption of e-invoicing has been a promise also for the banking system; so far real benefits for banks have been few. However, consensus is growing that the combination with financing mechanisms (e-finance) will bring new value to the market (and for banks). In a period when capital is short (Basel III), new techniques of allocating capital efficiently will make the difference for banks' profitability [21].

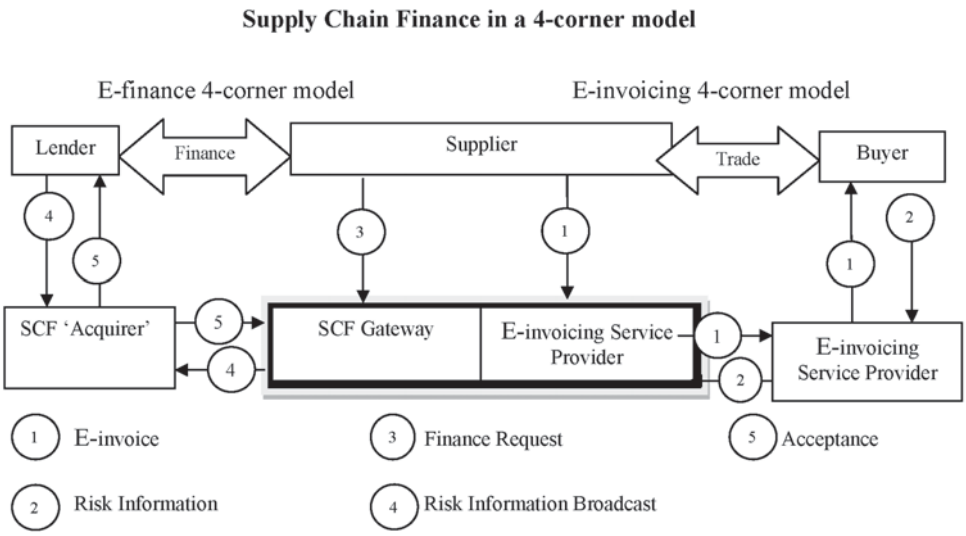
According to scientists, e-finance is a promising direction in the development of EM market, especially in financial crisis. As is known, in the developing countries the availability of borrowed funds for the development of entrepreneurship and national business is particularly important. For this reason, the experience of international companies in the e-finance field is a subject for an increased interest for both advanced and emerging economies. In Ukraine, the e-money market is just forming and there is no experience in the attraction of electronic financial resources for the development of national production, so the relevance of the study of this service sector is growing in modern conditions.

The work of Jaap Jan Nienhuis [21] used the following definition: "e-finance – is the provisioning of financing instruments to businesses using electronic technology for the end-to-end process, which includes the use of electronic channels for providing e-finance services and electronic ways to establish proper finance conditions and manage the risk related to the finance."

Practice shows that existing models so called "three-corner models of financing, where the lender (i.e. bank or other financial provider) is a central party, connecting one large buyer to many smaller suppliers, despite the increase in their popularity, face long-run limitations, in particular when it comes to fulfilling the massive SME demand for financing. Europe counts 23 million SMEs, representing around 99% of all companies [22]. To end fragmentation and improve scalability of existing models, Mounaim Cortet [22] proposes a "Supply Chain Finance in a four-corner model" in the financing and electronic invoicing (e-invoicing) eco-system (Fig. 6).

Fig. 6

RTF – a model of e-finance for small and medium businesses



Source: [22].

RTF model allows SMEs to obtain financing secured by their accounts receivable, as lenders can automate the process of financing. Thus, the parties of transactions may be in contact with their service providers and it is not necessary to register a new service provider for specific business relationships. For lenders, the application of RTF allows to increase the frequency of financing operations against a lower risk per engagement, as risk information is made available in real-time [22].

The outlined model of e-finance control is especially interesting for adaptation in developing countries, as the demand for the attraction of financial resources greatly exceeds the supply of commercial banks operating in these markets. Thus, we can assume that the "diffusion" of e-finance models will be directed from the developed markets into the markets with high demand for financial resources.

SME financing has always been a risky business for banks but the introduction of new regulations such as Basel III dramatically slowed down the process of SME lending. The key to SME-oriented and large-scale model that matches the seven

design principles is to standardise information about the risks and the possibility of sharing this information between creditors and suppliers in "real time funding" (RTF). This can be realised by combining existing e-invoicing and e-financial networks. A tight integration between these networks is crucial for real-time financing for SMEs, because it provides an opportunity to establish a more accurate risk profiles through the exchange of standardised information about the condition of the account between the parties in the supply chain.

There are also companies like Bilbus offering services to small and medium-sized enterprises (SMEs), as well as creditors, acting as an intermediary between business, SMEs and "appetites" of creditor. Initiatives of such companies assist small and medium-sized businesses in liquidity management and effective fundraising. It also helps lenders not only to find SMEs they are willing to work with, but also to manage risk during the lifecycle of their relationship.

Thus, E-finance involves the creation of a joint space for a fundamentally new funding ecosystem, which has its own network of service providers and lenders, including sustainable business models of the network; subsystem of data sharing for risk management and other subsystems. The new ecosystems funding formation process on the one hand can be considered as a promising alternative to working capital financing for small and medium businesses, and on the other hand, it contains systemic risks that can destroy traditional funding schemes used by banks and credit unions. In our opinion, these trends are very important for understanding the strategic approaches to the IEMS in emerging economies. The emergence of new models of business entities financing shall not be restrained by governance arrangements and regulations that "lag" with the development of market regulators.

Summary

The accelerating developments and innovations inherent to the market of international e-money systems force scientists and policymakers to keep abreast of these issues in order to respond adequately to relevant challenges. The author in this article outlines the key ideas and dominants of further development of the IEMS, analysis of which enables us to make the following conclusions.

The new forms of e-money products based on mobile devices can be observed and basing on growing convergence and integration processes between the IEMS and telecommunication sector (mobile operators) we can forecast their further dynamic growth on the global market of payments.

E-invoicing and e-financing can be named among other prospective directions for the IEMS development. E-invoicing has already received support from progressive international economic community, while the EU authorities have taken specific steps for its wide application. E-financing is a more complicated system, but not less demandable. Scarcity of sources for fundraising especially after the financial crisis creates pressure on existing models of financing, which are unable to satisfy all requests. In particular, this issue is on agenda for the SMEs. E-financing using

technical possibilities of modern IEMS can be good answer to their needs. However, creation of such mechanism will be a challenge, since this requires cooperation between, in essence, competing parties.

Privacy, low cost of transactions and borderless opportunities are among the main advantages of e-money products, whereas liquidity risks as well as inapplicability of buyer rights under law reduce attractiveness of such means of payment. The reasonability of using the so called "virtual/digital currencies" (one of e-money tools) is especially up for hot disputes. Generally, both market participants and authorities acknowledge, on the one hand, vulnerabilities of the IEMS in particular their agents and distributors to criminal activity including ML and FT, and, on the other hand, difficulties for them to implement all necessary actions for creation of effective AML and control systems. However, some market operators argue that placing limits on the transactions and monitoring them at the level system creates sufficient base to resist fraud/ML/FT risks.

In spite of undeniable attractiveness of e-money products for customers the regulating authorities, in this connection, meet certain difficulties in creating relevant effective monitoring and control systems in particular in emerging economies. The concern is that the regulatory policy of the central bank and related institutions should take into account not only level of development of the IEMS existing at the moment in the country but also, at a greater extent, the regulatory acts running in developed economies. This approach will accelerate the process of convergence and divergence of the IEMS in the world economy and "smooth" financing conditions for businesses on the global market of financial services.

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