TRANSFORMATION OF FINANCIAL SERVICES

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ALTERNATIVE ONLINE FINANCE: CROWDFUNDING AND ICO

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Abstract: *Blockchain is the main driver of the world's decentralization and initial coin offerings is the main driver of the investment decentralization. Initial coin offering represents a new model of financing start-up projects. Investors invest in projects and receive digital coins/tokens for their investments. After the initial coin offering investors can trade those coins/tokens on the cryptoexchanges. Therefore, technology development is creating a new class of securities through the initial coin offering. However, legislation connected to the initial coin offering is still loose and no real uniform framework exists, which enables that some offerings can be of very poor quality. Crowdfunding reward-based platform introduced its first initial coin offering, and we investigate whether critical success factors are the same for the real and blockchain project. We find that there are similarities.*

Keywords*: Initial coin offering, crowdfunding, blockchain, token, case study*

1. INTRODUCTION

Fourth industrial revolution brought many changes into the world we know. Technology and Internet became the essential in conducting almost any type of business. Financial service industry is undergoing profound changes as well. Currency is not just a currency, Internet and technology introduced cryptocurrencies. ValueWeb affects banking: retail, commercial, transaction, and private. Also, technology affects investment banking, asset and wealth management. Stock exchanges move to block exchanges (Tapscot & Tapscot, 2016). Initial public offering of stocks are getting competition of initial coin offerings, which are starting to be much discussed topic in the cryptocurrency community. Trading strategies, trading analytics and alternative finance are the main FinTech categories in the investment and capital markets settings (Skinner, 2016).

Crowdfunding is an alternative financing source of new ventures and an informational mechanism. Investors' allocations can provide information regarding how they value the project, and entrepreneurs use this information to decide on product release. In this way, they test and validate their innovative ideas on the Internet. Music is one of the main categories in the terms of the number of crowdfunded projects (da Cruz, IN PRESS). Platforms are used to finance cleantech or alternative energy projects (Cumming et al., 2017). Crowdfunding could even help raise funds for the Academic libraries (Bushong et al. 2018). This type of an alternative financing also has its place in the global healthcare. Different types of health projects can use crowdfunding platforms to raise capital, and they introduce certain economic benefits and risks (Renwick and Mossialos, 2017).

Now, established crowdfunding platforms are incorporating new kind of ventures, they are moving to the territory of coins offering. Coins represent the first generation of cryptocurrency assets. Tokens are the second generation of digital assets, which cover broader purpose of use then coins (Hale, 2018). Through the sale of the tokens entrepreneurs can obtain financing for the initial development of the digital platform (Catalini & Guns, 2018).

The rest of the paper is structured as follows, in the section 2 phenomenon of crowdfunding is defined and different models are presented. In the section 3, blockchain technology and initial coin offering (ICO) were introduced along with a case study of a first ICO on one of the reward-based platforms. Section 4 gives concluding remarks and directions for further research.

2. CROWDFUNDING

Crowdfunding is a process of funding a project or a business by a large group of people, or a crowd, where open call is performed essentially through web-based intermediary platform. Crowdfunding is a generic term which combines crowdinvesting and a crowdfinancing. Fundraisers, entrepreneurs and others seek funds through certain platform, and investors invest in these projects assuming risk and expecting payoff. Value of the platform stems from the number of existing and potential users, essentially from the ability to attract new users which represents network effect (Forbes & Schaefer, 2017; Tomczak & Brem, 2013). Therefore,

crowdfunding represents online alternative finance practice of financing an innovation idea, through electronic platform which involves a large number of people (Davies & Giovannetti, IN PRESS).

There are four models of crowdfunding: reward-based, equity-based, lending-based, and donation based. Reward-based crowdfunding model assumes that backers or funders provide finance to individuals, projects or companies in exchange for non-monetary products or rewards (Zhang et al., 2016). This type of crowdfunding is supported by platforms like Kickstarter and Indiegogo (Forbes and Schaefer, 2017). A backer or investor receives an award based on the size of the donation, and reward can take the form that entrepreneur chooses, like a product itself or some type of an artwork. Furthermore, platform itself can be of a different format. “All or nothing” is a platform that requires that a funding goal must be reached, in order for entrepreneur to obtain funds. “Keep it all” is a type of a platform that allows entrepreneurs to keep all the funds raised, irrespective of whether goal is reached or not (Davies & Giovannetti, IN PRESS).

Equity-based crowdfunding assumes that individuals or institutional funders purchase equity issued by a company (Zhang et al., 2016). Platforms that back equity-based crowdfunding are for example, Seedrs and Crowdcube (Forbes & Schaefer, 2017). Lending-based crowdfunding can take a form of peer-to-peer consumer lending and peer-to-peer business lending, where individual or institutional funders provide a loan to a consumer or a business borrower. The Funding Circle represent an example of a lending-based platform (Forbes and Schaefer, 2017; Zhang et al., 2016). Donation-based crowdfunding is a model of crowdfunding where donors provide funding to individuals, projects, or companies based on philanthropic motivations with no expectations of monetary or material return; where donations could be placed through Just Giving, for example (Forbes & Schaefer, 2017; Zhang et al., 2016).

When engaging into crowdfunding, the key is to know which crowdfunding practices can lead to a successful fundraising. Therefore, it is essential to determine characteristics of the crowdfunding practices and to exploit them. We can distinguish between individual crowdfunding practices and practices on standardized platforms. In the case of individual crowdfunding, it is found that crowdfunding helps entrepreneurs to attract attention of the crowd or potential customers on their venture. Such practices are proven to be especially important for artists. Furthermore, non-profit entrepreneurs proved to be more successful in the crowdfunding and reached their capital targets. If entrepreneurs are less focused on profits, investors believe they are more committed to deliver greater benefits to the community (Belleflamme et al, 2013). Significant motivation for investors’ participation in the crowdfunding platform campaign and their willingness to pay are product oriented, which stem from the investors’ desire to make-the-product-happen (Zvilichovsky et al., 2018). In order for crowdfunding to be successful, Forbes and Schaefer (2017) propose several guidelines in the domain of product development. Platforms are very different, not just according to the alternative finance model they implement, but some of them favour smaller projects and other support a big scale projects. Moreover, platforms could be oriented to the certain industry. Critical for success is to adequately determine funding goal and to compile the list of rewards, although backers are usually motivated to buy a product as a reward. Also, campaign should have a video, which should give all the relevant information in the first 30 seconds, since it is found that investors lose interest for the video afterwards. Petitjean (2017) find that backers react positively when reward-based campaign is connected to a video. The first week of a campaign is critical for the success of the project, as well as, the past success rate of the projects category. Crowd values comments and reviews regarding the project, since anticipation of the participation is important for project success (Petitjean, 2017). Success of an equity crowdfunding is dependent on the stage of the production process, where developed products are more likely to get financed then ideas. Also, ventures with large corporate clients have more chance to succeed in equity crowdfunding campaigns. Furthermore, entrepreneurial teams that consist of more members are more prone to success, and returning entrepreneurs’ that previously were funded by angel investors have greater success rate (Mamonov & Malaga, 2018).

3. INITIAL COIN OFFERING

3.1. Cryptocurrencies and blockchain technology

Cryptocurrencies represent a mixture of a computer science, cryptography and economics. Therefore, they are digital tokens that consist of peer-to-peer network, consensus mechanism and a public key infrastructure (Hileman & Rauchs, 2017). Cryptocurrency is a digital/virtual currency (Hale, 2018). Specific to cryptocurrencies is that, that there is a diversified infrastructure which supports them and no central authority oversees this network. Rules governing this type of the cryptocurrencies system are enforced with all nodes or network participants. Transactions are written in a shared ledger called blockchain. Transactions can be verified by each node since everyone has a copy of shared ledger. Cryptocurrencies use cryptography and blockchain for security (Hileman & Rauchs, 2017; Hale, 2018). Blockchain technologies enable digital assets

to be moved, and they have capability to prove that sender of an asset does no longer possess it. Blockchain technology is connected to the cryptography, where the owner of the private key can dispose of an asset by moving it, where movement is performed by changing the key pair (CMS, 2018). Therefore, it can be said that cryptocurrencies are primitive tokens. They represent an atomic element from which open public blockchain network is created. In contrast to primitive tokens, secondary tokens are created on top of a blockchain network and are representation of some property rights (real world asset or a blockchain product/service) (Sehra et al., 2017).

New tokens can be created through deployment and scaling of a new blockchain network or through issuance of tokens on the top of the existing blockchain network, which is not an easy process. Introduction of Ethereum opened the way for creation of smart contracts. Smart contracts represent applications that run atop of the decentralized network. In this way tokens can be created and distributed to users, and made tradable afterwards. Process of creating tokens and distributing to the users in return for cryptocurrency is an ICO process. ICO can be seen as a new distribution channel for assets. One should separate the primitive tokens which are cryptocurrencies like Bitcoin and Ethar, and secondary tokens (Sehra et al., 2017).

3.2. Properties of the Initial coin offerings

Initial coin offering represents a mechanism for financing a project by the means of selling future cryptocurrency or tokens for current and liquid cryptocurrencies, such as Bitcoin (Hale, 2018). Therefore, with ICO, companies are trying to attract investors to finance the implementation of their projects and in exchange investors receive cryptocurrencies or tokens, depending on a project. Coins or tokens can be traded on exchanges after the ICO, for the price that is higher than in the process of initial coin offering.

We can compare real and digital world in the sense of the issuance process, and differentiate between initial public and initial coin offering. Initial public offering (IPO) is a way that an existing, established, successful and large-scale company can raise capital by selling shares to the public (Hale, 2018; Norman, 2017). IPO represent a very long and an expensive process, where company needs to satisfy number of the requirements of the exchange. Only limited number of shares enter the market. Initial coin offering is similar in this respect to an IPO, since only limited number of coins/tokens enter the market (Norman, 2017). Companies that launch ICOs are start-ups', they only have an idea and they do not have minimum viable product (MVP). ICO can go through several phases: pre-sale or pre-ICO, crowd sale, and post-ICO (Hale, 2018; Norman, 2017). Pre-sale can be private and public, and one ICO can have both phases of pre-sale. Pre-sale is a token sale event that goes before ICO campaign or crowdsale, and it is run by blockchain enterprises. Both, fundraising target and price in pre-ICO are lower than in ICO, where tokens could be sold for a 10-50% discount in this phase. Speculators usually buy tokens in pre-sale phase and resell it on the exchange afterwards. Crowdsale assume mass sale of tokens. After ICO, some post-ICO activities can be organized such as fulfilment of commitments or even additional token sale (Hale, 2018). Main challenge with an ICO and issued tokens is that there is substantial difference between the qualities of individual offerings. It is still not defined what the boundaries for tokens issuance are and how regulators around the world see the issuance process (Sehra et al., 2017).

During the launch of the ICO, tokens are issued by adding transactions to the blockchain with description, number and unique ID. After the ICO, tokens are placed and can be traded on the crypto exchanges. Price of the token is formed according to the laws of supply and demand, and in many cases it follows a certain trend (Hale, 2018). Tokens market price rise up sharply after they are placed on the exchange and that is usually followed with a large drop in price. Such price movement is connected to the characteristics of investors that participate in digital market. Investors in ICO are usually small and non-professional, and they could be motivated by ideology. Moreover, other group of investors in the ICO are motivated to pursue speculation. Investors that participate in ICO's could be risk takers, and they can speculate that they will earn high returns in a short period of time. As soon as they make a return, they withdraw from the market, which is a viable strategy connected to the ICO since there is no lock-up period (Norman, 2017). Speculators sell their tokens when they are placed at the exchange, which introduces sharp drop in price and capitalization, and could stimulate the remaining token owners to sell them. Therefore, investors with ideological or intangible motivation are crucial for the ICO (Hale, 2018).

There are different types of the initial coin offerings. ICO could be in a form of payment tokens (currency tokens), utility tokens, and asset tokens. Payment or currency tokens are used as a means of payment for acquiring goods or services. Utility tokens provide access to an application or service. Asset tokens represent an assets in the economic sense much like equities, debt, and derivatives are different asset classes. Also, tokens which enable physical asset to be traded on the Blockchain are considered asset tokens (CMS, 2018). Investors in tokens can earn dividends or capital gain. Dividends in a digital world are based on smart contracts (Hale, 2018).

3.3. Case of the reward-based crowdfunding platform ICO

ICO's are loosely regulated worldwide and the quality of offerings can vary significantly. Even Security and Exchange Commission (SEC) see this area as the wild west of financial services. Value is created in a regulatory arbitrage (Sehra et al., 2017). That is why we turn our focus to the well-established crowdfunding reward-based platform, Indiegogo since they are making an effort due to their experience to select quality cryptocurrency investments. We are going to investigate whether successful crowdfunding practices related to funding a project are implemented when initial coin offering is launched. This is going to be tested on the first such an offering on Indiegogo.

We have collected information regarding the Fan-controlled Football League ICO from the Indiegogo web-site and relevant legal documents. The Fan-controlled Football League (FCFL) represents a professional football league that let fans control the course of a match, who trains a team and who will play the game. Fans can engage into the league by using Fan Access Network (FAN) tokens, which are smart tokens based on the Ethereum blockchain. This initial coin offering is over, and the project is funded.

Previous research find evidence that non-profit entrepreneurs are more successful and that investors are product oriented (Belleflamme et al, 2013; Zvilichovsky et al., 2018). Since this reward-based ICO provided fans with access to decisions making in professional sports, we can see that investors were very product oriented and supported this campaign since it is funded. This product makes fans more in control of football. Funding goal is reached, which means that it was adequately defined which is in accordance with finding of Forbes and Schaefer (2017). Existence of an informational video is seen as critical success factor, and especially in a reward-based crowdfunding platform. Backers lose interest in watching a video after 30 seconds, and that is why it is important that all vital information are disclosed in that time span (Forbes and Schaefer, 2017; Petitjean, 2017). FCFL creators did not put all relevant information in the 30 seconds of their video. In that time period accent was more on a video then on the information. Perhaps, sport itself is motivation enough for the backers to buy tokens. Petitjean (2017) find that crowd values reviews, but no comments were provided on a website, and social networks were not part of this analysis. Total number of team members that created FCFL is 15, which is a large team and this project wasn't completed by an individual and was successful in fundraising. Therefore, we can say that this finding is in accordance with Mamonov & Malaga (2018).

4. CONCLUSION

ICO's are much discussed topic recently and many market participants are against them, since there is no firm regulatory framework and the quality of many offerings are of very poor quality. However, blockchain start-ups have raised more than $7B since 2017 (Catalini & Guns, 2018). Many of them oppose to the ICO but many investors are keen to invest, which is evident from the amounts raised in just one year. Maybe with such results we could expect that blockchain crowdfunding would have an impact on the stock markets. Although, backers in a crowdfunding are small investors and stock markets attract investors of various sizes and sophistication, we could assume that number of small investors could decrease connected to the stock exchanges.

ICO's influence traditional, product/service crowdfunding industry in a way that we can see introduction of blockchain projects and their corresponding initial coin offerings on one reward-based platform. Practices that proved to be successful in product crowdfunding industry are mostly implemented in the case of the blockchain project. Those practices proved to be fruitful and in the case of the blockchain project.

Limitation of this study is that it looks only at one ICO on a reward-based platform. However, this ICO is a first of its kind on this platform and no comparison to other projects was possible. Further research should follow future ICO's and check for the consistency of the results and to test whether there are peculiarities connected to the ICO on a reward-based platform.

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HE WHO DARES WINS: NEUROFINANCE APPROACH TO FINANCIAL DECISION-MAKING

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Abstract: *It is not a secret that some underlying assumptions of traditional financial theories appear to be wrong. One of the most obvious is that investors are rational and that they make sound investment decisions. Emotions seem to be the missing part, and the impact of affect behavior on decision-making process should not be neglected. The question is what is happening in investor's brain and how do they really make their decisions. Neuroscience can give the answers, by studying the human mind, and explaining how and why a particular behavior occurs.*

Keywords*: neurofinance, the human brain, investment decision, risk, emotions*

1. INTRODUCTION

The traditional model of decision-making process assumes that humans are rational. Therefore, it provides with the set of explicit assumptions and axioms that would ensure rational decision. However, traditional finance theories fail to answer the questions like why do investors trade, how successful they are, how do they make decisions, why are they not behaving rationally, and why they do not play according to utility theory? The rational aspect of decision making is evident and understood, but the emotional element was neglected.

A few decades ago, scientists were intrigued with what is happening in the humans' brain shortly before, while and after making a financial decision. Why do some investors become reach, while others fail? There must be something more than just following financial theories and making the calculation. However, it is also more than just bravery, self-confidence, or understanding of risk and returns. What makes successful trader, why is he so special? There are countless examples of financially very educated people, even Nobel prize winner, people who are deeply familiar with every financial theory, who still failed on the reality of financial markets. Why? Neurofinance can give the answers. The problem was obviously inside them, not outside on the market. It was all in their brain. The answer lies in about 60.000 miles of brain's neural wires (Turcan & Dedu, 2010). Humans are irrational.

2. TRADITIONAL VIEW OF INVESTMENT DECISIONS

The standard economic theory claims that humans behave rationally, and therefore, they will make decisions in alignment to maximize their utility. Rational behavior means that people choose the best solutions based on logic and currently available options (Sadeghnia, Hooshmand, & Habib, 2013). Markowitz's portfolio theory states that rational investors choose their portfolio based on expected reward and variance, optimizing it through diversification. Portfolios that lie on efficient frontier are rational, and individual risk aversion would determine individual portfolio. One of the basic assumptions he made in his mean-variance theory was that people are risk aversive, and that decision they make would be rational as a result of the overall cognitive assessment of different investment options (Markowitz, 1952).

Risk and return certainly play a central role. However, do investors use risk and return on the investment decision? The answer is no (Sadeghnia, Hooshmand, & Habib, 2013). Much of unexplained is classified under "market anomalies," but these anomalies force researchers to see what will happen to their theories if we clear it from its assumptions (Shariff, Al-Khasawne, & ElSharif, 2012). For example, Fama (1993) introduces three-factor asset pricing model, and much empirical research was conducted over it. Whenever researchers have shown that the model did not work, it was classified as market anomaly: when small companies made higher returns due to higher risk adaptability, this was named "small firms effect" (Banz, 1981); abnormal return in January was called January effect (Thaler, 1987); and abnormal return in December were explained with Christmas decoration and named December effect (Rozeff, 1985). The existence of these anomalies shows the necessity for the further development of these theories.

3. THE ROLE OF EMOTIONS

Early researchers of decisions in uncertainty conditions considered investors to be rational and did not consider their emotions. Financial theories did not include the role of emotions in the financial decision-making process. Still, the practice has shown that it is not enough just to be smart nor highly educated. There are too many extraordinary scientists, genius minds of economics and finance who did not make a fortune on their theories put into practice, and oppositely, there are people who did not go to college, but no meter made billions on financial markets (Turcan & Dedu, 2010). Many organizations do not achieve the set goals in the execution of their projects and many of them seem to fail to achieve business goals, even though they were managed in accordance with the most contemporary project management systems and tools (Petrović, Mihić, & Obradović, 2014).

Decision-making process involves emotional assessment along with cognitive one, in fact, emotions color cognitive assessments, and cognitive risk assessment is often different than their emotional reaction to the same risk (Tseng, 2006). This can be easily observed from research that has shown that people in the negative shape of mind make a more pessimistic judgment, they overanalyze and overjudge, and vice versa, people in the positive mood, express enthusiasm and self-confidence tend to make more optimistic decisions and take a risk (Lucey & Dowling, 2005). Zajonc assumed in early 1980. The year that in financial decisions emotion play the much more important role than people were ready to acknowledge (Zajonc, 1980). When making a decision, investors encounter set of emotions, like fear, concern, satisfaction or pleasure regarding their return on investment (Jinda & Bahl, 2016). Emotions influent cognition, so decisions are not rational, in traditional financial theory way. It becomes clear that emotions must be understood to appreciate their obvious and deep influence on the decision-making process.

Despite the knowledge about standard financial theories and principles, people want to avoid possible future regret, which is powerful cognitively developed emotion, and end up with decision different from rational ones (Coricelli, Dolan, & Sirigu, 2007).

Emotions are specially awakened in the risk circumstances, more precisely, emotions influent decisions depending on how the risky, uncertain and intangible decision is. The more complex decision is, the more emotions influent it (Lucey & Dowling, 2005). Emotions play an important role in taking or avoiding risk; people love to believe that they use common logic when choosing an investment. The truth is that emotional decision making is a default option for our brain (Montier, 2007), and most of the business cycle is determined by the volatility of satisfaction in people's brains, as Keynes concluded (Kolev, Njegovanović, & Ćosić, 2015).

Comprehending the emotions and their influence on decision process in finance requires researchers to go into the human brain and observe its functioning with a goal to understand how investor's brain works.

4. AWAKENING OF NEUROFINANCE

Decisioning in a real world worked in an opposite way than traditional financial theory suggested, real people, do not behave rationally and do not make rational decisions. The practice confuted theory since investors do not choose their portfolio solely on risk and return basis, and their decisions do not always maximize their utility. (Simon, 1957) (Kahneman & Tversky, Judgment under uncertainty: heuristics and biases, 1974) (1979) So, why real investor's behavior differs from rational one?

Questioning existing theories about financial decision-making made quite a confusion among researchers, and standard, widely accepted theories started to lose over the new theories that were dealing with behavior in finance. The new field, called behavioral finance, examines finance from a broader perspective. It combines finance with sociology and psychology and tries to explain how emotions influence financial decisions. (Turcan & Dedu, 2010) Behavioral finance has its roots in cognitive psychology, and according to it, emotion represents the result of the cognitive assessment of stimulus or event (Merkle, 2008). The issue is that people have cognitive limitations which lead to cognitive disorders and cause biases in behavior (Pompian, 2006). Behavioral finance tries to explain causes for exceptions in financial literature and investigates how investors make organized and mental errors in their judgments (Sadeghnia, Hooshmand, & Habib, 2013).

Even though theories in behavioral finance were beneficial for decision science, with enormous impact on the illuminating decision-making process, their research scale was limited since they explain the behavior of investors that can be seen on the outside. They could not explain how and why this behavior occurs. Furthermore, behavioral finance could not quantify emotions or look inside the source of these emotions and resulting behavior. (Shalini, 2012)

The next step in understanding the financial decision was to examine the human brain, to comprehend how and why it affects investor's irrationality. This led to a new field called neuroeconomics, and it subfield neurofinance. Standard financial theories explain and deal with the investors should behave, behavioral finance study how real investors truly behave, and neurofinance investigates how and why this investors' behavior occurs (Jinda & Bahl, 2016) (Edwards, 2004) (Zaleskiewicz, 2006). The closer difference between behavioral finance and neurofinance is in that behavioral finance explores how people react and interact in financial decision making, while neurofinance explores how and why these reactions and interactions occur based on human brain and hormonal activity (Tseng, 2006). The human brain becomes central intention of recent research of financial decisions. Neurofinance is a science that combines psychology, finance, and neuroscience to analyses the role of the human brain in investment choice (Peter & Hilke, 2005).

Neurofinance explains why human behavior differs from the principles of traditional finance; it explores human behavior, affective states, and psychological biases by keeping track of brain activity right before, during and fight after making a decision. It deals with neural basis of emotions and how these neurons influent financial decision-making (Jinda & Bahl, 2016). In that way, it can be determined which mental factors influent financial choice (Greenfinch, 2008). A neuroscientist is mapping human brain to find out how wear and greed color financial markets (Turcan & Dedu, 2010).

It is important to note that neurofinance is not contradictory to theories of rational choice, it widens the horizon by observing variables that were not considered in traditional theories. (Camerer, 2008) Neurofinance should be seen as a bridge between brain and financial decisions which enables a better understanding of financial decisions made by humans (Sadeghnia, Hooshmand, & Habib, 2013).

Development of modern technologies for brain scanning recently made a path for a deeper understanding of brain physiology, enabled simultaneous stimulation of a different part of the brain and made a foundation for experimental research in this hypersensitive area (Kolev, Njegovanović, & Ćosić, 2015). Kuhnen and Knutson (2005) performed the very first study on neurofinance by using human brain, using event-related fMRI. Their study has shown that emotions had an important role in the decision-making process and gained a set of brain images proved that emotions caused by anticipating gain or loss could have different neural signatures.

5. CONTRIBUTION AND SIGNIFICANCE OF NEUROFINANCE

Neurofinance, as a young science, tries to understand internal processes in investor's brain that lead to thinking which manifest in external (re)action, since behavior arises from thoughts laying behind them (Shalini, 2012).

The basic premise of neurofinance is the existence of differentiated brain regions that independently or in interaction with each other involved in making financial decisions (Kolev, Njegovanović, & Ćosić, 2015). The question is whether activation of certain part of the brain can predict subsequence behavior (Knutson & Bossaerts, Neural antecedents of financial decisions, 2007). Recognition of brain regions involved in making investment choice proved that emotive aspect interacts with rational ones since human decisions are the product of two decisions systems (Shalini, 2012). First one is emotional, more primitive, effective, intuitive and quick. It resolves that more complex decisions are providing approximate solutions and helps in narrowing set of possible choices. The other one is rational, more calculative, biological and slower. It can solve only well-defined problems, makes well-thought decisions, but function in a much slower way. (Olsen, 2007)

In order to detect activation of certain brain regions, and track brain function during decision making process, neurofinance use the latest technology such as functional Magnetic Resonance Imaging (fMRI), Magnetic Resonance Imaging (MRI), Electroencephalography (EEG), Positron Emission Tomography (PET), Computed Tomography (CT), Steady State Typography (SST), Magnetoencephalography (MEG), Transcranial Magnetic Simulation (TMS), eye tracking or blood pressure (Jinda & Bahl, 2016) (Turcan & Dedu, 2010).

The capability of investors to perform the optimal behavior in decision making probably depends on the functions of a set of brain structures, including the prefrontal cortex, which is responsible for complex cognitive decisioning, memory, analysis and making conclusions. Neurofinance researches shown that whenever investors make a cognitive mistake, it is due to insufficient and incomplete information gathered in the prefrontal cortex (Jinda & Bahl, 2016). Neuroscience found that these two systems constantly interact, even fight each other, and influent decisioning. It is shown that emotional part often wins in this interaction, stressing out how strong our subconscious instincts are (Morse, 2006).

The brain reacts to the aspiration for gaining reward and avoiding loss, and both behaviors can be activated or deactivated autonomously (Peterson, Neuroeconomics and neurofinance, 2010).
Risk seeking and risk aversive choices can be activated from two different neural circuits, including nucleus accumbens (NAcc) and the anterior insula. Activation in Nacc and insula respectively can lead to a change in investor's risk preferences. Risk assessment means that person choose between potential gains and losses. When people expect to gain money, the Nacc ventral stratum is activated, and when someone expects a feeling of pain, anger, disgust or fear, anterior insula is activated. The research has shown that risky choices and mistakes because of risk-seeking were succeeding activation of Nacc, and less risky decisions and mistakes because f risk-aversive behavior was due to activation of anterior insula. (Kuhnen & Knutson, 2005) Another research in neurofinance found that Nacc activation spontaneously increases just before taking financial risk (Knutson, Wimmer, Kuhnen, & Winkielman, 2008) (Turcan & Dedu, 2010).

Nacc releases two neurotransmitters (Peterson, 2007) (2007). The first one is dopamine or pleasure chemical. Brain reward system, activated by profit expectations, communicate through dopamine neurotransmitter and gen that regulates them influent investor's judgment about gaining reward and avoiding risk (Kuhnen & Chiao, 2009). Dopamine has a great impact on reward expectations and increases risk-taking behavior (Sadeghnia, Hooshmand, & Habib, 2013). The other one is serotonin, responsible for the feeling of anxiety and depression. When unfulfilled expectations like investment lose occurs, the level of serotonin lowers, and it leads to investor's loss of enthusiasm. To avoid further losses because of risk-aversion, investors with a low level of serotonin make bad investment choices, sell investment too early and increase their loses (Jinda & Bahl, 2016). In decision process, one more brain activation is happening, in the amygdala, brain's center of fear. Fear can be an emotional expression of uncertainty in financial assessment (Hsu, Bhatt, Adolphs, Tranel D, & Camerer, 2005). This is a system for loss avoidance. Both gaining reward and avoiding loss systems lay in a limbic system, an emotional region of forebrain and they guide investors behavior through subtle emotional influence on judgment, thinking and acting (Peterson, 2007).

Neurofinance attempted to understand increased deeply and decreased activation of these brain systems, to change biases in behavior that led to huge money losses (Sadeghnia, Hooshmand, & Habib, 2013). Next step might be to explore modifications of different generations thinking process, since their business behavior significantly changed, especially obvious in Millennials comparing to generation of Baby Boomers (Obradović, Mitrović, & Pavićević, 2017).

6. CONCLUSION

Financial researchers recently realized the necessity to understand better how emotions influent decision-making process and what can be done about it. In an attempt to deal with investor's choice under risk and uncertainty, a new scientific field arises. Neurofinance, as a completely new business concept, became top topic around the world, the new trend in economic thinking (Kolev, Njegovanović, & Ćosić, 2015). Neurofinance provides the possibility for a deeper understanding of emotions and their influence on decision making; it explains how and why investor's specific behavior occurs (Cohen, 2005). Furthermore, neurofinance can tell us how to drive investor's behavior closer to optimal, by learning how to overcome subconscious emotional reactions.

Neurofinance, with its diagnostic tools, enables much profound analysis of human brain in the light of financial decisions, enables further explanation of investor's behavior and their emotional biases. It is a very young scientific field. The future will show its limits, and how far they reach. The unthinkable of impact on all areas of business is to be expected yet.

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PLATFORM BANKING: EMPIRICAL EVIDENCE ON CUSTOMER EXPECTATIONS AND ACCEPTANCE

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Abstract: *The platform business model operates as a many-to-many business model with the infrastructure controlled by a particular entity. Various industries have so far seen the radical changes due to the emergence of this phenomenon. However, the full platform strategies have not been actualized in banking by now. The infantile platform concept, such as branchless banking are the outmost reaches of banking platforms. Our aim is to explore the costumers' expectations regarding the platform and branchless banking. For this purpose, we collected primary data using the questionnaire as a research tool. The results indicate that costumers find platform businesses to have the first mover advantage. Also, the study finds that perceived risks and attributes of banking-as-a-platform are strong predictors of the future use.*

Keywords*: platform banking, fintech, customer expectations, retail banking*

1. INTRODUCTION

Developments in technology have changed the way in customers and suppliers interact (Teece, 2010). In a traditional or linear model, companies create values such as products or services and then sell them to customers downstream the supply chain. The platform business model operates as a many-to-many business model with the infrastructure controlled by a particular entity. This concept attracts more and more scholarly attention (Kornberger, Pflueger & Mouritsen, 2017).

As such, it is a potential panacea for the improvements in the efficiency and decrease in costs. Accordingly, the popularity of platforms has grown exponentially in last decade. Some platforms even dominate the industries in which they operate. As seen by Manville (2016) 'The networks and markets forming around—and orchestrated by-- Google, Airbnb, Uber, and other virtual exchange enterprises are the maws into which traditional companies are now disappearing.'

The banking sector has already been challenged with disruptions in service providing. For instance, the emergence of payment card transactions created a two-sided network with strong network externalities (Rochet & Tirole, 2002). This disruption was only incremental by nature, because the consumer's bank – the issuer – and the merchant's bank – the acquirer – only have to obey simple rules such as 'honor-of-all-card' or 'no-surcharge' rule. The essence of banking remains untouched. Nonetheless, platform banking may completely change the role of the bank in the supply chain. Instead of actively controlling depositing and crediting activities, the bank (if even a bank) only maintains the platform, and the service is provided by many to many. This might seem as a clairvoyant-type of prediction, but it is even became a cliché at fintech conferences to see at least one success story in what is now known as Banking-as-a-Platform (BaaP) model (Brear & Bouvier, 2015)

Even though the platform models could potentially change the landscape of banking, only a paucity of research has tackled consumers beliefs, expectations and acceptance toward this phenomenon (Karjaluoto, Mattila & Pento, 2002). To the best of our knowledge, this is the first study examining consumer's perspectives related to the emergence of platform banking.

Our aim is to explore the consumer's attitudes and expectations regarding the platform banking. Particular aim is to determine which companies have the "first mover" advantage. An additional aim of the study is to explore the main risks and drivers of the future platform banking use as seen by customers.

We proceed as follows. To start off, we review the literature related to economy of sharing, platform banking as a business model and the main risks associated with the consumers' use of platforms. Second, we elaborate on the methodology used in the study – the questionnaire as a research tool, sampling procedure, data collection and processing. Third, we explain the results of the study. Finally, we place our findings in the context with previous work in this area, leaving the space for concluding remarks.

2. RELATED WORKS

In this section, we depict the platform as a business model. Afterward, we delineate the use of platform business models in the banking industry with a particular emphasis on disruptive competitors in the banking sector and the main risks associated to the implementation of this model in the banking.

2.1. Sharing economy and platforms as business models

In popular and academic literature there is no unanimous consent on the concept and term of sharing economy. However, a common element in various definitions is sharing of underutilized assets in ways that improve efficiency, sustainability and community. Sharing economy became an umbrella term for spectrum of non-ownership forms of consumption activities (Habibi, et al., 2017). Hawlitschek, et al. (2018) proposed seven criteria to distinguish sharing economy among the ocean of related terms, such as collaborative economy, on-demand economy, peer economy or gig economy: (1) increasing utilization rates, (2) peer-to-peer principle, (3) existence of reimbursement, (4) no transfer of ownership, (5) resource tangibility, (6) leveraging of information systems, and (7) temporariness.

Bucher et al. (2016) describe this new culture of making people's belongings accessible through online networks with one simple sentence: "What's mine is yours, for a nominal fee". Depending on who owns the asset and who sets the conditions of sharing, there are three distinct models that prevails in sharing economy: decentralized platforms (i.e. Airbnb), centralized platforms (i.e. Zipcar), and hybrid platforms (i.e. Uber). According to Vaughan and Daverio (2016), these platforms generated revenues of nearly E4bn in Europe in 2015. This research also predicts that global revenues of sharing economy could hit the value of $335bn by 2025.

Due to complex nature of sharing economy, some authors even suggest avoiding academic debates about finding common single definition. Acquier, et al. (2017) state that instead of narrow definition, the efforts should be made to find organizational framework for mapping its perspectives. Their research proposes three foundation pillars of sharing economy:

1. "Access economy – sharing underutilized assets (material resources or skills) to optimize their use"
2. "Platform economy – intermediation of decentralized exchanges among peers through digital platforms"
3. "Community-based economy – coordinating through non-contractual, non-hierarchical or non-monetized forms of interactions".

Fintech has fully enabled the implementation of sharing economy. In general, Vives (2017) states that 'new digital technologies automate a wide range of financial activities and may provide new and more cost-effective products in parts of the financial sector, ranging from lending to asset management, and from portfolio advice to the payment system.' An important game-changer in the banking industry are technologies that enable Banking-as-a-Platform models.

A platform can be described as a business that facilitates direct interaction between two or more distinct types of customers. Platform business models generate value by connecting and organizing transactions and create strong network effects (Acquier, et al., 2017). These effects help in structuring the innovation process and accelerate the adoption and use of platforms (Gawer & Cusumano, 2015). Within the sharing economy, it is possible to distinguish four types of platforms: (1) accommodation sharing platforms; (2) car and ride sharing platforms; (3) peer-to-peer employment markets; and (4) peer-to-peer platforms for sharing and circulating resources (Martin, 2017).

2.2. Business case for platform banking

Banking-as-a-Platform model is still a working concept without solid definition in theory. Other than tech-based studies, most of the scholarly effort has so far been put to, the use for unbanked population (Dermish et al., 2011) or the general social impact (Fernandez, et al., 2017).

Mas (2009) states that 'a branchless banking platform is made up of three key elements: (1) The retail network, composed of the collection of retail outlets where transactions are originated (2) The payment network, which aggregates the transactions from the collection of retail outlets and routes them to the appropriate issuer (3) The account platform, which manages the service logic by authorizing individual transactions and maintaining the value of accounts.' Further on, Porteous (2006) illustrates the difference between bank-based and non-bank-based models. These categories depend on the nature of the scheme provider. On one side, bank-based models are push strategies provided by the existing banks. On the other

side, non-bank-based models are pull banking schemes of telecommunication or other companies with the expertize in technology.

Following the all aforementioned, we set one research question and two hypotheses:
RQ1. Whom do customers trust more in setting the banking platform – banks or platform businesses?
H1. Perceived risks negatively affect the adoption of platform banking
H2. Perceived benefits positively affect the adoption of platform banking

3. METHODOLOGY

3.1. Research instrument, measures and variables

We used questionnaire as a research instrument to collect the primary data. It was distributed in a paper-and-pencil form. This technique was used in order to assure that sophisticated examinees are the only sampled ones. Prior to providing a questionnaire to them, they were pre-tested for the awareness of the Banking-as-a-Platform model.

The questionnaire had five sections. After the demographic section, we asked the examinees if they would prefer platform to be operated by banks or platform business, such as Google, Airbnb, Uber etc. The third section examined a perception of the main risks associated to the use of platform banking. This section was developed following Yousafzai, Pallister, & Foxall (2003) and Mha (2015). We developed the fourth section on the main drivers for the use of platform banking inspired by Martins, Oliveira & Popovic (2014) and Vankatesh et al. (2003). Finally, the last section examined the overall readiness of the examinees to use platform banking services in the future.

3.2. Sampling procedure and data collection

The sample used in the study was random. The examinees were interviewed by trained assistants (four year students from the Faculty of Organizational Sciences mentored by the authors). The examinees were asked first about their knowledge of banking services and the concept of Banking-as-a-Platform model. Out of the population of 423 examinees, 146 (slightly more than a third) of them fulfilled the criteria on the awareness of the concept. The gender was slightly misbalanced in terms of gender structure as 56.8% of examinees were male.

3.3. Data processing

The data was entered in the Statistical Package for Social Sciences (SPSS). Quantitative data was analyzed with descriptive statistics: percentages, means and standard deviations. Interdependence of determinants (independent variables) and contract management efficiency (dependent variable) was determined by correlation (Pearson moments two tailed correlation coefficient analysis) and multiple regression.

4. RESULTS

4.1. RQ1 – Who has the advantage in creating banking platforms?

The results for RQ are displayed in Table 1. Interestingly, less than one fifth of examinees would join platform banking if it would have been developed by a bank. Contrary to that, nearly 90% of examinees would use the services if they were provided by platforms such as Airbnb, Amazon or Google.

Table 1: Costumers' opinion

	If banks would create banking platforms, would you use the services		**If platform businesses would create banking platforms, would you use the services**	
Valid	3	2.1	0	0
Yes	26	17.8	131	89.7
No	117	80.1	15	10.3
Total	146	100	146	100

4.2 Hypotheses H1-H2

Before testing the hypotheses, we conducted pre-analysis including descriptive statistics (mean, standard deviations, and internal reliability tests) and correlation analysis.

Table 2: Descriptive statistics and correlation matrix

	Mean	StD	CA	1	2
Risks	2,44	,83	.89		
Drivers	3,49	,99	.90	-,01	
Overall use	3,55	,95		**-,29**	**,55**

bold – significant at .01

Since we found both correlations to be significant, the next step was to examine the influence and intensity of variables seen as independent to the overall use of platform banking (dependent variable) in the model. The results of the regression analysis indicated that the research model predicted 63% (R2=.63) of the variance which is displayed in Table 3.

Table 3: Regression analysis for the potential use of platform banking

Variable	Coefficient	SE	t-statistic	Prob
Constant	2.49	.29	8.53	.00
Risks	.33	.07	-4.41	.00
Drivers	.53	.06	8.48	.00
R square	.63	F		46.05
Adj R square	.39	Sig		.00
SE of regression	.75	Dependent variable: Potential use of PB		

5. DISCUSSION AND CONCLUSION

5.1. Key findings, implications and contributions

Our study had two basic aims. The first one was to explore a perceived 'strategic' advantage in platform banking. As seen by costumers, platform businesses have far better position in establishing the full scale capacity for platform banking. Banks are, obviously, not perceived by customers as key innovators in the future and they will need to proactively manage the disruptive forces of the emerging financial technologies (Reddi, 2016; Kumar, 2017). This seems to be in line with the studies focused on the inability of incumbent firms to identify new markets in the face of disruptive technologies (Vecchiato, 2017).

The second aim was to explore the effects of perceived risks and main motivators on the future use of platform banking services. The results of our study provided support for the research model and hypotheses tested. Examinees were aware of the potential risks. The most important risks was related to the cybercrime and potential loss of private data (see Appendix 1). Additional aim was to examine the driving forces for the use of platform banking. The most important force is the facilitating conditions and the availability of resources for platform banking (see Appendix 2).

Our study has twofold implications. As for the implications for researchers, this study is the first to examine the potentials of platform banking. Future studies should concentrate on the development of this business model in banking and capture on evolutionary characteristics of this phenomenon. From the practical point of view, this study is particularly interesting for platform businesses and banks. The first ones could harvest the perception of the 'first movers'. It could, however, be speculated that they could experience barriers related to regulatory environment (e.g. Makaya & Nhundu, 2016). The second ones should develop key competencies related to fintech development and position themselves as the 'domain' leaders.

5.2. Conclusions

Platform businesses are gaining importance nowadays. The wealthiest incumbent firms are platform businesses. Still, banks are still out the platform ecosystem. Nonetheless, not only digital, but traditional banks consider modular banking (in Banking-as-a-Platform or Banking-as-a-Service model) will be the future of banking. This study puts an additional light to this forecast. We demonstrate that customers envisage platform banking to be an important and widely used concept. Moreover, they see current platform businesses to be possible leaders in the field of offering banking services through their or new platforms.

The most important pillars of future platform banking are risk mitigation related (especially to the security of data) and driving forces – particularly the ones related to the sufficient resources of banking service users.

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APPENDIX 1 FREQUENCIES FOR THE PERCEIVED RISKS OF PLATFORM BANKING USE

	Mean	Std. Deviation
I believe that it is risky to create an account for PB	2,2808	,95948
I do not believe in security of PB	2,5068	,99825
I could use my financial resources if I use PB	2,2055	,93157
I could face operating errors with PB	2,2466	,97246
I could lose control over personal financial data	2,6712	1,19256
I could be a vicitim of cyber crime	2,7260	1,14783

APPENDIX 2 FREQUENCIES FOR THE MAIN DRIVERS OF PLATFORM BANKING USE

	Mean	Std. Deviation
I have resources for PB use	4,1438	1,27571
I have a knowledge for PB use	4,0959	1,27754
PB would be easy	3,5342	1,21578
PB would be widespread	2,8973	1,42262
PB would be simple to use	3,4452	1,03744
PB would be secure to use	3,1986	1,09305

PAYMENT PROCESSING IN WEB BASED ENVIRONMENTS: THE BENCHMARK OF THE WORLD'S LEADING PAYMENT PROCESSORS

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Abstract: *With the development of ecommerce industry and payment processors such as PayPal,the concept of electronic payment models and payment processing has become crucial for the success of web based businesses. There are several ways to collect the funds, from using e-cash to using e-wallets. E-wallets have the huge potential, while credit cards as payment alternative are still one of the mostly used payment methods during electronic purchases and payments. What are the trends of using e-payment methods, what should the businesses pay attention to when choosing a payment processor and what are the top payment processors worldwide are the questions that are answered in this paper. By reviewing the offer of payment processors, the authors have analyzed the key factors which could affect the costs, efficiency, conversion rate and the profitability of any web business which uses e-payments as a way of collecting funds. By reviewing the current literature and based on the empirical experience, the authors have chosen the top 8 payment processors and gave their opinion – which of the payment processors could have the biggest impact on the web businesses.*

Key words: *payment processing, benchmark of payment processors, payment methods, web companies, credit cards*

1. INTRODUCTIONTOONLINE PAYMENT PROCESSING AND PAYMENT METHODS

E-commerce and internet have brought the third industrial revolution and all of its benefits. The internet traffic has increased at a significant rate from the beginning of third industrial revolution until now. Conventional payment methods rates are reducing in favor of e-payment methods. With the e-payment trends, overall spending for the goods and services bought via Internet have been increasing constantly over the years (Lowry, Wells, Moody & Humphreys, 2006). United States as the most developed e-payments market have reported 1.18 trillion US dollars in online spending in 2016. In Europe, this number has reached 281.5$ billion. With more than 311 million consumers who are actively paying through e-payment channels, this number will keep growing (Statista, January 2018). With the market globalization and stronger e-commerce industry, companies operate in a tough economic environment which require a strong focus on cost optimization, timescales and resources optimization in order to boost efficiency. Also, in order to increase competitiveness, companies tend to adapt to new business models, to react quickly and to raise efficiency (Scheer & Brab, 2010).

Nowadays, the vast majority of businesses use e-banking systems for payments. That trend continues for B2B [1]segment. However, during the 90's, e-commerce industry has created a need for the fast and efficient payments in B2C [2] segment, as well as in PtP (peer-to-peer) segment(Jeffrey, 2002). Peer-to-peer payments enable one side (not registered as a business) to transfer the money easily to the other side. But, before that, wire transfers and cash as the traditional payment methods have been replaced with credit card payments, which became a dominant payment method. On the other hand, new payment methods became available due a significant growth of e-payments. Although internet banking has reached its peak, considering the security and the quality of the service, money transmitting systems search for a full replacement of money orders through wire transactions and paper checks (Joseph, 2002).

The concept of online payment processing is defined as the process of connecting the buyer and the seller through an online platform by exchanging the data(Lowry et al, 2006). On the other hand, online payment systems are defined as an online monetary system which connect all stakeholders in the process of online payment such as sellers, buyers, banks and other financial institutions.

ThefirstonlinePtPpaymentsworkedasanonlineauctionone-BayandAmazon. Zhang and Haizheng (2006) have shown that there are several factors which could affect the choice of a payment method in an online auction. The payment method customer will choose, depends on product attributes and seller's characteristics as

[1] B2B – Business-to-Business segment
[2] B2C – Business-to-Consumer segment

well. If the surrounding is more secured, the use of credit cards will increase, otherwise cash-equivalents will dominate as a payment method.

One of the main reasons for introducing this paper is to show the benchmark of types of online payments and types of payment processors which could help the tech companies to increase the overall business performance, especially those in the early development stage– startup companies.In order to understand the importance and purpose of online payment processors, it is crucial to have an overview of the e-payment industry and companies which operate within this industry.

Based on a sample of more than a million websites (n=1.066.419), PayPal is the global leader in an online payment industry with more than 72% of market share. The top 10 payment processors based on the market share according to the Datanyze[3] are the following:

Table 1: Top 10 Payment Processors by market share (n=1.066.419 domains)
Source: Datanyze, 2018

No.	Payment Processors	Domains	Market Share
1	PayPal	778,385	72.99%
2	Stripe	113,132	10.61%
3	Square	20,644	1.94%
4	Authorize.net	18,811	1.76%
5	Amazon Pay	17,716	1.66%
6	Klarna	16,623	1.56%
7	CCBill	11,923	1.12%
8	Braintree	11,735	1.10%
9	Google Checkout	10,654	1%
10	WorldPay	5,125	0.48%

There are several payment methods which are crucial to mention as e-payments methods. According to Hsieh(2001), payment methods could be divided into:

- Electronic credit card payments (e-credit),
- Electronic cash payments (e-cash) and
- Electronic check payments (e-check).

In Table 2, Peffers and Ma (2003) explain the difference between these three types of payment methods, considering the advantages and disadvantages of each of them.

Table 2: Overview of e-payment methods and their characteristics
Source: Peffers, K. and Ma, W. (2003), An Agenda for Research About the Value of Payment Systems for Transactions in Electronic Commerce

Payment method	Advantages	Weaknesses
e-credit card payments	This payment method solves the anonymity issues by supporting users in processing the transactions without showing their personal information. It can also be used in an offline mode.	It is hard to implement a sustainable system of anonymity with data that are hard to trace. That data security is necessary in order to prevent the fraud and allow disputes of the transaction (Hou X.& Tan C., 2005)
e-cash payments	E-cash payments are based on cryptography in order to provide and sustain the security of transactions.	Overlooked due to the popularity of e-credit. It can take longer for transactions to settle. The speed of settlement and disbursement also depends on the processor.
e-check payments	This method is widely used and trusted and could be used both, online and offline. It leverages the existing credit accounts.	These transactions can't provide anonymity and have security issues due to fraudulent activities.

[4]Datanyze is a platform for collecting information on the usage of payment processors.

Many companies search for the increase of purchases by accepting additional forms of payments and by increasing the number of credit cards by which a customer can pay. However, there are certain risks businesses have to face. Some of those risks could be reduced by using e-payments. During the period from 1994 to 2001, the usage of the traditional payment methods, such as cash and checks have reduced by 10% and 3% retrospectively. The usage of credit/debit cards have been increased over the years. As well as the total amount of spending (Rysman, 2007)[4]. The alternative payment methods such as e-cash and usage of e-wallets will also face a growth in the upcoming years. Therefore, the risk of not being able to collect the funds is one of the biggest issues web companies could have. The benefits of using e-payments could be related to decreased costs, improved cash flow efficiency, increased protection of information and protection of payment provider.

2. PAYMENT GATEWAYS AS PROCESSORS AND PAYMENT PROCESSING TYPES

Payment gateways or online payments processors are defined as the companies which are authorized to process credit card transactions between buyers and sellers. In order to buy or sell via online channels, the customer needs to submit the information on his/hers credit card to an online business (2Checkout, 2014). Payment gateway is also defined as the processor for collecting the funds through credit card or e-cash payments. There are several types of processors based on payment methods mentioned in Table 2. The first one is a conventional credit card payment processor. It is connected to several objects such as the merchant's website and shopping cart, merchant's bank and cardholder's bank. The overall concept of this type of processing could be seen in the Figure 1.

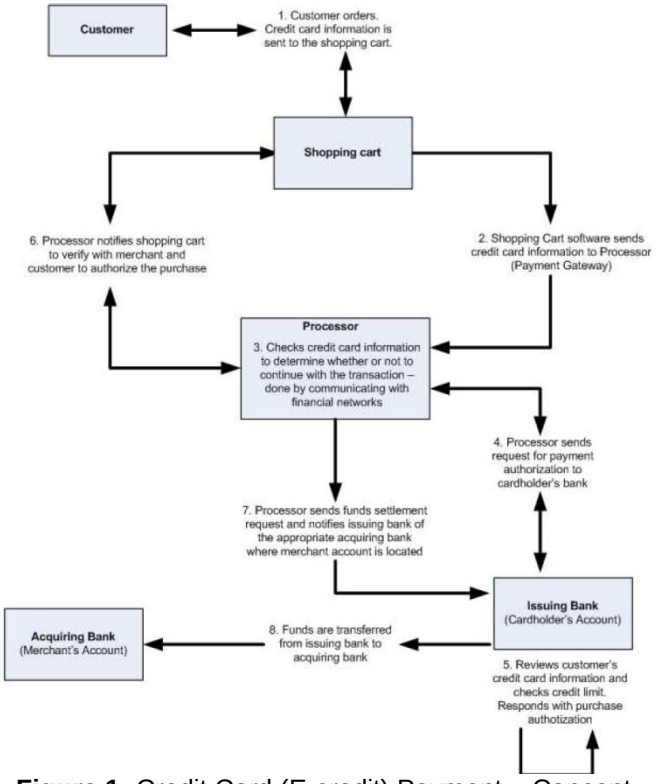

Figure 1: Credit Card (E-credit) Payment – Concept
Source: Lowry, P. B., Wells, T., Moody, G., & Humphreys, S. (2006). Online Payment Gateways Used To Facilitate E-Commerce Transactions and Improve Risk Management

Merchant's bank accounts established at bank in order to collect the funds from credit card holder. Internet merchants, such as web companies, usually do not keep the funds as a business checking or business savings, but use them as daily or weekly transfers to another bank account. The whole process starts with the customer orders a certain good or service through the shopping cart. The payment gateway coordinates the communication between entities by handling the information collected from them through several phases from authorization and submitted for settlement phase to the final settlement and disbursement of the funds to the merchant's bank account. In the first phase – authorization phase, the credit card information of the client/customer is being sent from the merchant's website to the payment gateway (processor) by the shopping card with verification of the credit card information. As soon as the information gets verified, the

[4]The study done by Mark Rysman (2007) has taken in consideration the usage of payment methods in non-online environment.

request is being sent to the cardholder's bank for the card to be charged (Lowry et al., 2006).When the information from the credit card is being processed and validated, if it's valid and there are enough funds on the customer's bank account, the credit card company sends an approval to the payment processor. Later on, the payment processor communicates with the merchant's website and shopping cart and confirms the authorization of the purchase/reservation. After the authorization is done, the payment processor initiates a funds transfer. This phase is known as the "submitted for settlement" phase in which the processor allows the transfer of the funds from the customer's bank (credit card) to the merchant's bank account.

With the PtP, it is necessary for both, customer and merchant to have an opened account with the PtP provider. All the payments are processed and handled through PtP provider. There is no need for other financial institutions to be an intermediate between two parties. However, in comparison to the credit card payments, the use of PtP services is limited, so not everyone could subscribe. The main condition to process the transactions using PtP is that both sides have the accounts opened at the same PtP provider. Figure 2 is illustrating the flow of the system. The communication (both-sides) goes through a PtP platform, first by initiating a purchase, through creating invoices and money requests to the final stage - the transfer of the funds.

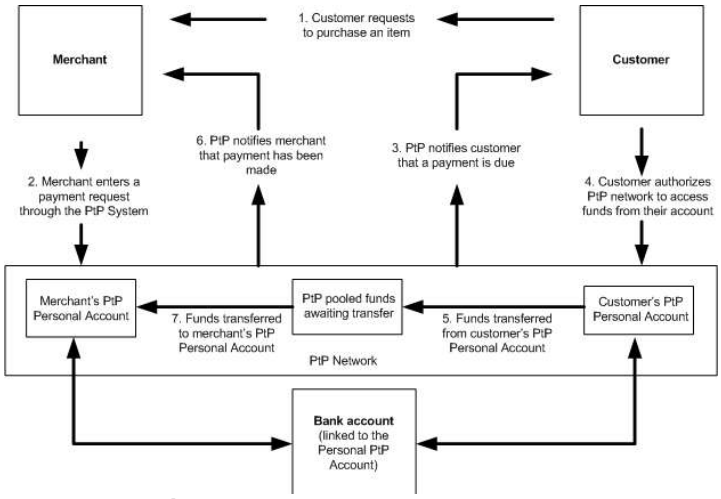

Figure 2: PtP Payment – Concept
Source: Lowry, P. B., Wells, T., Moody, G., & Humphreys, S. (2006). Online Payment Gateways Used To Facilitate E-Commerce Transactions and Improve Risk Management

The PtP system's simplicity makes it suitable for low-volume sellers or for sell through auctions. There are no monthly fees for maintaining the account, although there are fees paid on each transaction which (in the case of PayPal - 2.9% of the transaction value + 0.3$ per transaction).Considering all the facts, PtP accounts have several benefits:

- Automatically invoicing;
- Accepting payments directly from the website through API;
- Both ways transactions (selling and buying) with the members of the same PtP network;
- Payment without credit cards, using e-cash.

The comparison between these two types of processing could be seen in the Table 3. The main difference between concepts shows both – benefits and disadvantages of each type of processing.

Table 3: The comparison between e-credit and PtP concepts of processing

	E-credit processing	**PtP processing**
Duration of the payment settlement	0-5 days	instantly
Duration of the payment disbursement	2-6 working days	0-1 working days[5]
Type of disbursement	Automatic	Manual (on demand)
Communication	Communication with the third-party intermediaries (banks and credit card companies); Only one side is required to have the merchant account opened in order to process payments	The direct communication between two sides without intermediaries; Both sides need to have an opened PtP account
Verification	Multi step verification	One step verification after the account is being made

[5]The data are based on a empirical research;

It would be devastating for any business and its growth, if the credit/debit cards are excluded as a payment method, since they are still the mostly used method of payment. Without processing credit cards, the potential growth that a business may expect from this type of plan is limited to the number of similar users that would be potential customers. Many PtP providers offer an upgrade, called a premium, or business account. Both PtP and Credit Card payment processors operate using a similar fee model. They collect the fees as a percentage of the value of processed transactions and add a fixed fee price per transaction. The model of paying cost per transaction could be seen in the Equation bellow.

$$\boldsymbol{FC} = \sum_{\boldsymbol{i=1}}^{\boldsymbol{n}} (\boldsymbol{TVi\ x}\ ß + \ \boldsymbol{\theta i}) \tag{1}$$

$$\boldsymbol{TTV} = \boldsymbol{TV\ x\ n} + \boldsymbol{FC} \tag{2}$$

FC – Total costs of the transaction fees
TV – Transaction value
TTV – Total value of the transaction
i – number of transactions
i = 1,….,n

TV – the value of transaction
ß – relative fee per transaction [%]
θ – fixed fee per transaction

In the case of the refund, the payment processor returns the amount with the relative fee, but keeps the fixed fee amount.

$$\boldsymbol{TRV} = \boldsymbol{TTV} + (\boldsymbol{FC} - \boldsymbol{\theta}) \tag{3}$$

TRV – Total refund value

Most of the payment processors offer ß as 2.9% and θ as 0.3$. The more transactions the company has, the bigger chances are that the company could negotiate lower fees. Some of the processors have highlighted this option on their websites. For example, the payment processor - *2Checkout* has put a target of 50.000$ in monthly transactions in order to lower the fees for the merchant.

3. THE TRENDS OF E-PAYMENTS

In order to make a benchmark of payment processors, the authors have focused on the e-payment trends. For making a decision which processor of portfolio of processors to use, it is important to understand the consumer market and the trends of processing. Based on various researches and analyses, debit and credit cards are still dominant as a payment method. According to the research of the Total System Services Inc (2016), people still tend to trust more on paying through credit cards (42%), than on PayPal (26%) and Debit Cards (12%)(Total System Services Inc., 2016).

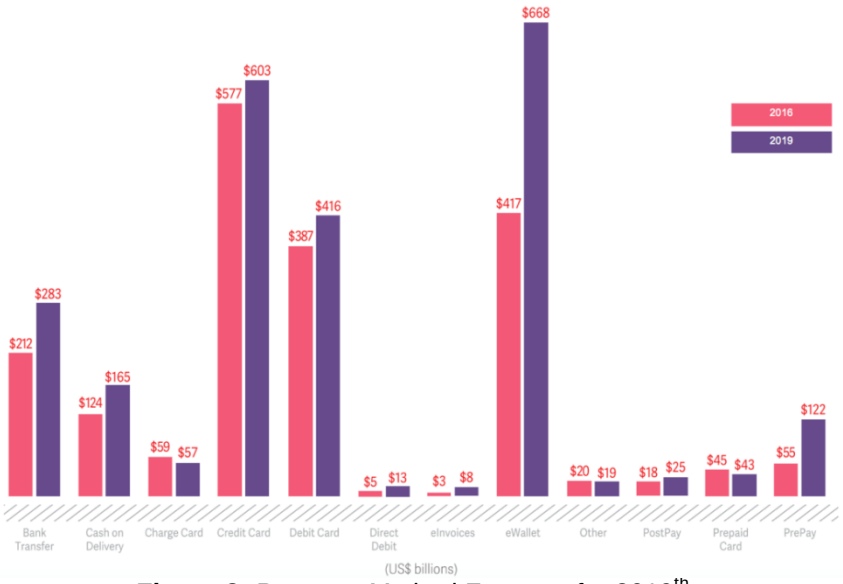

Figure 2: Payment Method Forecast for 2019th
Source (WorldPay, Global Report, 2015)

The trend of online payment through payment processors is increasing. With 577$ billion, credit cards are on the first place based on the volume of processed transactions and total processed amount. It is expected to have a growth of 4.5% until 2019th and to participate with 24.4% of all payment methods and by 2020th to reach 711$ billion in processed transactions with 20.2% participation in payment methods. In the Figure 3, there are the data which represent the structure of payment methods used in 2015 and the predictions for 2019. It is expected that credit and debit card payments will decrease in the upcoming years in the favor of alternative ways of payment which are recording a growing trend of usage. Considering the credit cards, Visa is the most dominant credit card with more than 50% of participations, with the following MasterCard, Amex and Discovery retrospectively.

Based on the forecasts, the credit card usage will drop to the second position from 2019, due to strong expectations of e-wallet growth. The digital wallet or e-wallet is a form of online payment platform based on using virtual money. With the development of trade market for cryptocurrencies and blockchaintechnology it became one of the most important payment methods. Digital wallets could be defined as a software application which enable the secure transfer of money without the need to enter all the credentials (Gulati, Nadeau, & Rajgopal, 2015). Credit Card with the biggest participation in total credit card transactions is Visa, which goes from 14% in China to 64% in Netherlands and India, 65% in Poland and 61% in Russia. Master Card is the second biggest credit card provider. Third and fourth are American Express and Discovery. United States as the most developed market has recorded 53% of Visa transactions, 24% of MasterCard and 15% of American Express transactions, considering the total volume of processed transactions by using different credit card types.

The biggest growth of alternative payment methods is expected in the North America, Asia Pacific countries, while in Europe this trend will have a negligible growth in comparison to North America and Asia Pacific. Considering the Global Market, it is expected that the credit cards participation in e-payments will drop from 29.9% in 2014, to 24.9% in 2019. The similar estimation goes for debit cards – from 20.1% in 2014 to 17.2% in 2019. On the other hand, e-wallets should record a growth – from 21.7% in 2014 to 27.6% in 2019. In North America, the credit cards usage will drop, but it will remain the number one payment method, while in Europe and Asia, e-wallets will be the primary payment method (WorldPay, Global Report, 2015). However, it was shown that people tend to trust more to credit card payments while purchasing online - 42% in comparison to PayPal payments - 26% (Total System Services Inc., 2016). There is no doubt that the credit card usage will keep having a strong impact on e-payments. Therefore, it is important to analyse both payment methods – the ones that support e-cash and e-credit payments.

4. THE BENCHMARK OF PAYMENT PROCESSORS

Not all payment processors have the ability to process the transactions in each country or to connect to the merchant's website. Therefore, the authors took into considerations several factors as a key determinant for choosing the payment processors. The first one is the availability on the market where the website is being established. Since most of the web businesses offer their products or services to at least several markets, it is crucial to have the exchange office implemented by the processor which allows to process the transfer in currencies different than the domestic currency. All types of costs are important for the company, so are the processing and maintenance costs and chargeback fees. People tend to trust more if the purchase is done directly through the website and if it has an additional security certificates shown on the check-out page (Schlosser, White, & Lloyd, 2006). By having an option to pay directly from the merchant's website, the company could turn more visitors into buyers. This is also one of the factors which was analyzed. Every modern web business tends to increase its conversion rate. Conversion rates could be increased by applying the payments directly from the website where the merchant offers its product or services. By using the API,payment processors offer as an extension for developers. Based on the analysis of several payment processors (PayPal, Authorize.Net, 2Checkout, Stripe, Braintree, WePay, Dwolla, Paymill, Square), the authors have made an overview of their offer in the Table 4. The selection of the processors was made based on the number of countries the service is available on the first place. The market share was not crucial when making a selection.

The collected data is related to location where payment processors are providing their service, use of the exchange office for payments in the foreign currencies, monthly maintenance costs, transaction fees, chargeback fees and the information could it be implemented on the merchant site through the API or is it *off site* oriented.PayPal has recently adopted the use of credit cards for payments as well, which made it a hybrid version of payments – PtP and E-credit. However, it doesn't offer the possibility of *on-site* payments. Therefore, many businesses consider using multiple processors as a best practice. Considering the trend of payment methods, the authors have selected only the processors which operate through the PtP and e-credit methods, since they are the most dominant ones.

Table 4: Payment processors benchmark

Payment processor (Market Share)	Location availability and support	Useofthee xchangeof fice	Monthlyma intenancec osts	Transactionfe es (ß + θ^6)	Chargebackf ees	Onsite/Offsit epayment (PtP/E-credit)
PayPal (73%)	193 countries	Yes	0$	2.9% + 0.3$ per transaction	/	Offsite (PtP)
Authorize.Net (1.76%)	US, Canada, UKandsom eEuropeanc ountries	Inprocess	45$ setup + 25$ a month	2.9% + 0.3$ per transaction	/	Onsite&Offsit e (E-credit)
2CheckOut (0.16%)	Over 200 countries	Inprocess	0$	Varies according to the location: 2.4% (EU)/ 2.9%(US)/3.9 % (non-EU) + 0.3$ per transaction (Volume discount for processing more than 50.000$ a month)	25$	Onsite&Offsit e (E-credit)
Stripe (10.61%)	US, Canada, UK, Belgium, France, Ireland, Netherlands	Yes (1% conv.fee)	0$	2.9% + 0.3$ pertransaction	15$	Onsite (E-credit)
Braintree (1.10%)	US, Canada, Australia, HongKong and part of Asia, Europe	Yes	0$	2.9% + 0.3$ pertransaction (Amex 3.2$ + 0.3$ pertransaction)	15$	Onsite (E-credit)
Wepay (0.04%)	US	No	0$	2.9% + 0.3$ pertransaction	/	Onsite (E-credit)
Dwolla (0.02%)	US	No	25$ (basic)/250 $ (premium)/ 1500$ (custom) per month	0.25$ pertransaction s (fortransaction slessthan 10$ - free)	/	Offsite (E-credit)
Paymill (0.06%)	39 countries (mostlyinEu rope)	No	0$	2.95% + 0.28 eurpertransacti on	/	Onsite
Square (1.94%)	US, Canada, Australia, Japan, UK	Yes	0$	2.9% + 0.3$ per transaction	/	On site + Application (E-credit)

[6] Cost per transaction/merchant account fees

PayPal as the world's leading payment platform has over 137 million active accounts which makes it an absolute leader. With presence in 193 markets, it is possible to use it for payment in more than 26 currencies. It is easy to transfer the funds and easy to request payments. PayPal has many advantages, such as its recognition as a payment processor, pricing policy, enormous customer base, multiple account option, ability to accept and send international payments as well as no monthly maintenance cost. Many authors see PayPal as the best alternative for processing e-payments (Niranjanamurthy M, 2014). However, not all countries have fully adopted PayPal in their economies. In the Republic of Serbia, online payment processors such as PayPal and others were being banned and restricted for opening as an option until the late 2016. One of the reasons is that PayPal and other well-known payment processors didn't have the license for processing payments in some countries and were not interested in smaller markets (Narodna banka Srbije, 2016).However, there were other possible payment processors beside PayPal.

Web companies which offer the services worldwide should have an option for collecting the funds in as much countires as possible. Therefore, processors such as PayPal, 2Checkout, Authorize. Net, Braintree and Stripe are the most important. If the company considers that as a priority, then Paymill, Dwolla and We pay would be excluded from further analysis.

Authorize.Net is one of the most popular processors. On the other hand, the exchange office is something which is necessary to have in order to transfer different currencies. It also has a monthly maintenance fees as well as the setup fees. It doesn't have any special benefit in comparison to the other processors. If the company seeks only for the lowest costs, Dwolla could be the best payment alternative, but only on the US market. Square has a unique benefit through a hardware extension and an application for e-payments which could process the payment online and on the spot of sale. However, it excludes Europe and most of the Asian countries. Stripe is a huge payment processor, which takes 1% of each payment paid in a different currency, besides the transaction fees. Therefore, PayPal, 2CheckOut and Braintree are recommendations by authors.

Based on the empirical experience from the processing of one online reservations company, the best way to be able to collect the funds is to have a portfolio of both PtP and E-credit processor. There is one leading PtP processor - PayPal, which is highly recommended to be implemented. The fact that PayPal has acquired Braintree, could help choose between 2CheckOut and Braintree. Since it's easier to open the merchant account on Braintree if the PayPal account is previously opened, the combination of PayPal and Braintree could make a good payment infrastructure for each web business. If a company combines both types of processing, the disadvantages of each type mentioned in Table 3 could be reduced. By having a PtP processor, the overall liquidity of a company could get improved, and with E-credit processor the possibility of global mass payments through using credit cards would be available. In Serbia, there are several startup companies which operate like this, such as FishingBooker, CarGo, ActiveCollab and others.

4. CONCLUSION

By further growing ecommerce industry, the electronic payments and payments processors will grow as well. By 2020, it is expected that ecommerce will reach the value of more than 2.4$ trillion. As a support for this kind of trade, payment processors will need to follow the trends in e-payments.

Even though e-wallets represent a huge potential and the future of e-payments, e-credit as a payment method is currently the mostly used method of payment. People still tend to use credit cards for their online purchases. Visa is the most used type of credit card with the following MasterCard, Amex and Discovery at the last place.The fundamental problem of this paper is how to choose the best payment alternative for web business which collect the funds by using a certain platform (payment processor). Through the analysis of concept of payment processing, payment methods and e-payment trends, the authors highlighted the important features of processing which could be a guideline for choosing the proper processor for business.By benchmarking the top payment processors and advising on which to use, the authors tend to help businesses through stimulating key results, such as payment efficiency, cost reduction, conversion rate and overall profitability.

As today's businesses need to adopt online payment systems and technologies, they need to understand the benefits of e-payments methods, type of payment processors and potential problems for not implementing the proper payment processor. Besides having an opportunity to lower the transaction costs, companies could use existing payment processors systems to manage the cash flow.

It is the opinion of the authorsthat it's valuable for businesses to have a diversified portfolio of implemented payment processors on their websites. PayPal is one of the most important processors for PtP processing. By comparing the available locations for providing services and support, transaction and maintenance costs,

the specifics of the processors and benefits and disadvantages of each type of e-payment and payment processor, the authors suggest using a combination of PayPal and Braintree as a best combination and a great payment infrastructure.

All in all, the authors call out for a research of the current use of e-wallets and its benefits, since it starts showing a huge potential for global e-payments,with cryptocurrencies as their type of payment. By combining credit card and e-wallets, companies could get a wider perspective of a potential for their businesses.

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ACCOUNTING FOR EXPECTED CREDIT LOSSES – CROATIAN CASE

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Abstract: *This paper discusses the results of application accounting for expected credit losses IFRS[1] 9 model. Accounting for expected credit losses (AECL) should provide to users of financial statements useful information about an entity's expected credit losses on its financial assets and commitments to extend credit. This field of accounting is substantial in banking business and it is inevitable to research AECL through its effect on banking business regulation. Although AECL was covered by accounting standards, last financial crisis has shown weak spots of the regulation. Delayed recognition of credit losses on loans (and other financial instruments) was identified as a main weakness in existing accounting for expected credit losses model. This is why accounting in this area has changed. Due to recognition of credit losses would decrease financial result and value of assets, banks have found solution through claims management companies so there is visible correlation of claims management business results growth and IFRS 9 introduction in Croatia.*

Keywords: *Accounting, IFRS 9, expected credit losses, banking business*

1. INTRODUCTION

Issue of accounting for expected credit losses was subject of huge debate among accounting standard setters. Also researchers have made great efforts to create a model which will improve the quality of accounting standards and the quality of accounts produced in accordance with these standards. Last financial crisis has shown weak spots of the accounting standards for expected credit losses. Delayed recognition of credit losses on loans (and other financial instruments) was identified as a main weakness in existing accounting for expected credit losses model.

As demonstrated during the financial crisis, the financial condition of a bank is highly sensitive to rapid increases in credit risk. Therefore, appropriately determining how, when and in what amount to recognize the effects of increases in credit risk should be a priority for all stakeholders in the banking industry, including bank directors and management, supervisors, investors and other users of bank's financial statements (Basel Committee on Banking Supervision, 2015).

The significant role of accounting in this financial crisis is to minimize the pro-cyclical impact of accounting on bank capital regulation in order to achieve financial stability (Song, 2012). Marton and Runesson (2016) pointed out three main reasons why accounting for credit losses must be studied in context of IFRS and the incurred loss model and its effect on banking business. First, accounting for credit losses in banks is characterized by high measurement uncertainty of loan loss provisions, which reflects the estimation of credit losses and constitute an innately high-judgment item. Thus, it is possible to write accounting standards that allow high judgment in this area. Second, loan losses play a central role when evaluating risks and stability of banks; as such, credit losses have substantial economic significance. Third, there exists a favorable research setting in that the change from local GAAP[2] to IFRS happens at different points in time in the EU, enabling a difference-in-differences (DID) test.

The incurred loss model in IAS[3] 39 resulted in credit losses being recognized only when a credit loss event occurs, which is corrected with IFRS 9.

In July 2014 the IASB added to IFRS 9 the impairment requirements related to the accounting for expected credit losses on an entity's financial assets and commitments to extend credit (IFRS 9, 2014). Previously in March 2013, IASB published Snapshot: Financial Instruments-Expected Credit Losses where they described a three-stage approach model for expected credit losses accounting. That model is the current model required by IFRS 9 for expected credit losses accounting.

[1] International Financial Reporting Standard
[2] Generally Accepted Accounting Principles
[3] International Accounting Standard

US GAAP and IFRS do not have a converged standard for credit losses accounting. At the beginning of the project for credit losses accounting, the FASB and IASB worked jointly. Due to the lack of support for a three-stage approach in the US, the FASB developed a single measurement model, while the IASB decided to continue with the three-stage model. FASB also decided it would not continue to pursue a classification and measurement model similar to the IASB. As a consequence, IFRS 9 is not a converged standard.

2. EXPECTED CREDIT LOSSES MODEL – IFRS 9

Expected credit losses model should be applied to:

- investments in debt instruments measured at amortized cost,
- investments in debt instrument measured at fair value through other comprehensive income,
- all loan commitments not measured at fair value through profit and loss,
- financial guarantee contracts to which IFRS 9 is applied and that are not accounted for at fair value through profit or loss, and
- lease receivables that are within the scope of IAS 17; leases, and trade receivables or contract assets within the scope of IFRS 15; revenue with contracts with customers.

Expected credit losses are expected to be recognized before financial assets become delinquent, as a forward-looking information, and when credit risk has increased since initial recognition, and when contractual payment is more than 30 days past due.

Expected credit losses model required by IFRS 9 is defined with a three-stage model for impairment based on changes in credit quality since initial recognition. The model is shown in Picture 1 below:

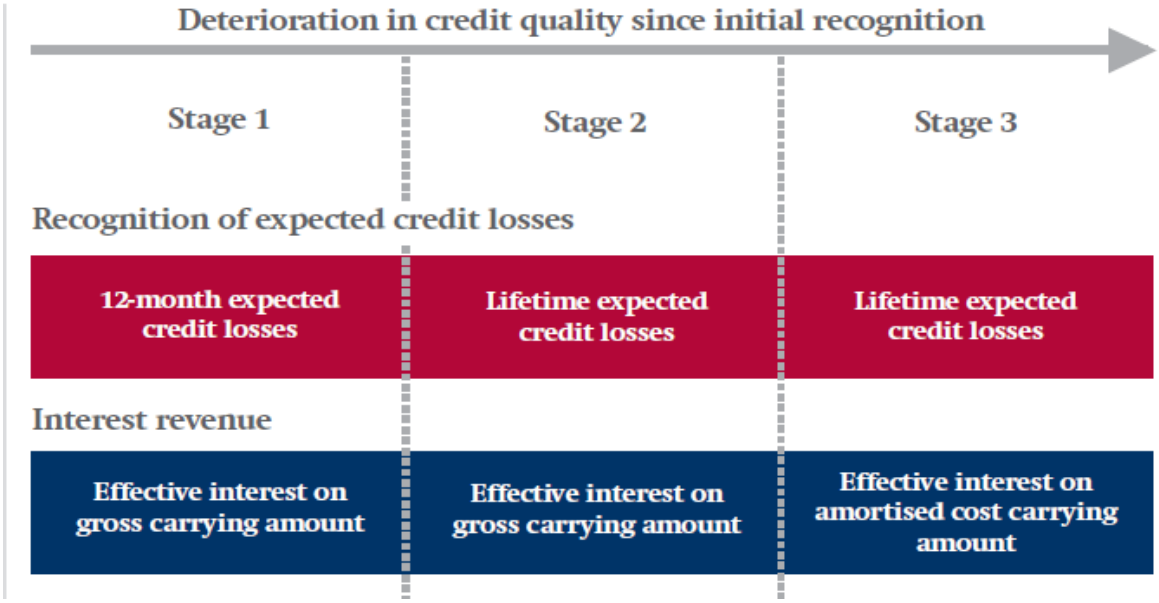

Figure 1: Expected credit losses model – IFRS 9; Source: IASB, 2013, Snapshot: Financial Instruments: Expected Credit Losses

The model is based on expected credit losses in the period of twelve months, in which recognition of expected credit losses through IFRS 9 is divided into three stages. Stage 1 recognizes expected credit losses when a financial instrument is originated or purchased. Immediately, twelve month expected credit losses are recognized in profit and loss and an allowance for expected credit losses (loss allowance) or provision is established. Stage 2 considers instruments with increased credit risk from initial recognition. At stage 2, full lifetime expected credit losses are recognized. Stage 3 is a situation when credit losses are incurred or the asset is credit-impaired. Interest revenue is then calculated based on the net amortized cost carrying amount.

At initial recognition, a financial debt instrument is supposed to be in stage 1 (except for purchased or originated credit-impaired financial assets). At each reporting date, the entity holding such an instrument will

have to assess whether credit risk has increased significantly since initial recognition and if there is any objective evidence of impairment in order to maintain it at stage 1 or downgrade it at stage 2 or 3 (Salhi and Thérond, 2014).

IFRS 9 ECL model requires that more than 90 days past due must be shown as loss in profit or loss account, which is why it was big issue for entities who had bad receivables in their balance sheets.

3. PRESENTATION OF IMPAIRMENT EXPENSE

According to IFRS 9 (2014) impairment expense can be presented in statement of profit or loss, or in other comprehensive income. If the impairment is the result of changes in market interest rates, reducing the market value of financial instruments, the effect of value loss should be presented through other comprehensive income. However, if increased credit risk is caused by subjective risk, the risk of bad assessment, the effect of expected credit losses is to be presented through profit or loss. The following example shows the investment in a financial instrument, where expected credit losses are caused by the change in fair value of financial instruments as well as by subjective risk. In that case, the total expected credit losses are allocated in the statement of profit or loss and fair value of other comprehensive income (FVOCI).

Example 1 – Presentation of impairment expense

An entity purchases a debt instrument with a fair value of CU 40,000 and measures the debt instrument at fair value through other comprehensive income. The instrument has an interest rate of 3% over the contractual term of 5 years, and has a 5% effective interest rate. At initial recognition, the entity determines that the asset is not a purchased or originated credit-impaired asset.

Table 1: Recording

		Debit	Credit
Purchase of a financial instrument	Financial asset - FVOCI	40,000	
	Cash		40,000

On the reporting date, the fair value of the debt instrument has decreased to CU 38,000 as a result of changes in market interest rates. The entity determines that there has not been a significant increase in credit risk since initial recognition and that expected credit losses should be measured at an amount equal to 12-month expected credit losses, which amounts to CU 600.

Table 2: Recording

	Expected credit losses	Debit	Credit
Increase in credit loss during the period	Impairment expense (P&L)	600	
	Other comprehensive income	1,400	
	Financial asset - FVOCI		2,000

The cumulative loss in other comprehensive income at the reporting date was CU 1,400. That amount consists of the total fair value change of CU 2,000 (that is, CU 40,000 – CU 38,000) offset by the change in the accumulated impairment amount representing 12-month expected credit losses that was recognized (CU 600).

4. CLAIMS MANAGEMENT GROWTH IN CROATIA

Although, for example in UK under Ministry of Justice exists claims management regulation office and publishes annual report on data about industry, in Croatia does not exist data about industry at one place. Hypothesis is that new AECL model has led to growth of companies in claims industry. Data on financial performance of companies in the industry of claims management indicate correlation of claims management companies' performance and IFRS 9 introduction. Recognition of credit losses would decrease financial result and value of assets, so for that reason banks have found solution through claims management companies. Biggest claims management companies, which are operating on Croatian market are funded by banks and owned by banks. From case of chosen companies, it is clear that after publication of IFRS 9 AECL banks have start solving problem of credit losses through claims management companies. On January 1 2018 when started application of IFRS 9 recognition of credit losses would lead to decrease of financial result so banks have solved that problem by transferring ECL to, sometimes their subsidiaries, and rearranging contract details about payment date.

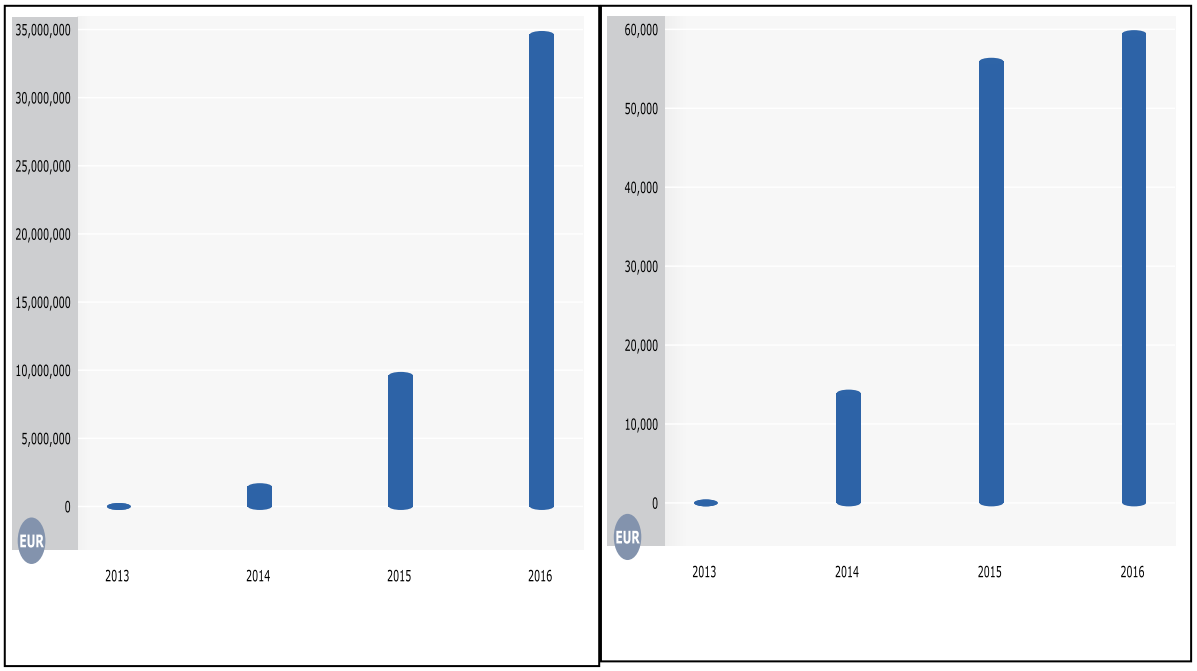

Figure 2 and 3: Turnover of two chosen Croatian claims management companies after IFRS 9 introduction; Source https://amadeus.bvdinfo.com

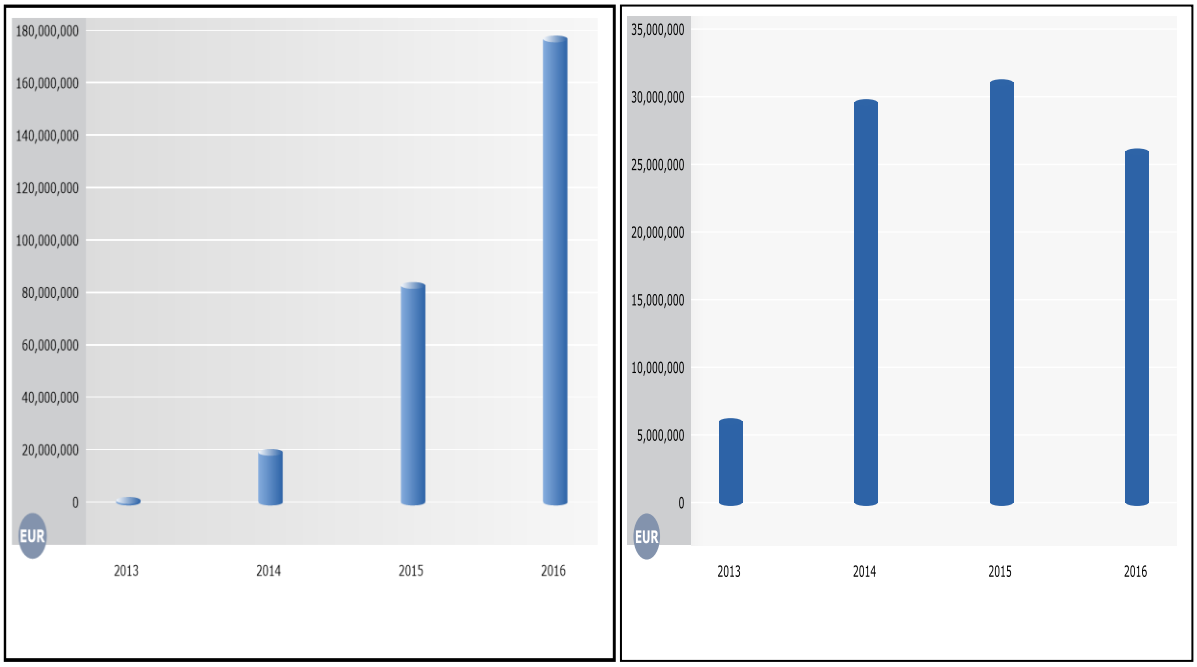

Figure 4 and 5: Total assets of two chosen Croatian claims management companies after IFRS 9 introduction; Source https://amadeus.bvdinfo.com

Shown data about total turnover and total assets are data from two Croatian claims management companies related to banks. One of the companies is owned by bank and the other one is related to bank and solves financial claims, in most cases related with real estate business. From shown figures it is clear that in those two cases exponential growth started in 2014. The implementation of the standard model of AECL was a burning issue in the concrete terms in Croatia. In Croatia, late payments of credit receivables are very frequent due to general insolvency of business entities, although generally speaking, most of the claims are still paid within the limits that do not deviate significantly from the environment. The literal application of the IFRS 9 and Basel Guidelines in described conditions on January 1 2018 would lead to serious problems presented result. That is why banks in Croatia have transferred their ECL to the claims management companies. Hypothesis of this paper was that there is correlation between IFRS 9 introduction and claims

management companies' growth. Although Croatia is small market with less than thirty banks operating, information about their real ECL is hard to get. At the same time in Croatia there is no claims management regulation office which usually publishes annual report about the industry. Also claims management companies are not under the same NACE classification number so researcher must take case study to confirm the hypothesis. Case study of two banks related claims management companies confirmed that there is correlation between IFRS 9 introduction and increase of claims management sector in Croatia. From turnover and total assets data it is clear that growth of those two financial statement elements was significant, especially in 2014 and 2015, first two years of IFRS 9.

5. CONCLUSION

This paper analyzed and presented the accounting treatment of expected credit losses. Credit losses have become issue since the start of the financial crisis in 2008, leading many financial institutions and companies with a significant share in financial investments to the edge of existence. In such situations, timely prediction and accounting for expected credit losses are crucial. IASB and Basel Committee on Banking Supervision identified it as a priority problem to be solved through accounting procedures, although belatedly.

Standard accounting model for predictions of credit losses during the period records, along with anticipated credit losses recorded at the beginning of the period, additional credit losses estimated on a basis of the dynamics of collection of financial assets receivable. Every delay in collection of receivables is recognized in accounting as an increase in ECL. In this way, a portion of realized profit is reserved for possible expected losses, which, if not effectuated, return to profit.

The implementation of the standard model of accounting for expected credit losses was a burning issue in the concrete terms in Croatia. The model is based on deterioration in credit quality due to the time lag from the due date, which in given conditions calls for recording of credit losses. However, in Croatia, late payments of credit receivables are very frequent due to general insolvency of business entities, although generally speaking, most of the claims are still paid within the limits that do not deviate significantly from the environment. Thus, the literal application of the provisions of IFRS 9 and Basel Guidelines in described conditions on January 1 2018 would lead to serious problems presented result. That is why banks in Croatia have transferred their ECL to claims management companies. Hypothesis of this paper was that there is correlation between IFRS 9 introduction and claims management companies' growth. Although Croatia is small market with less than thirty banks operating, information about their real ECL is hard to find. At the same time in Croatia there is no claims management regulation office which publishes annual report about industry, and claims management companies sometimes have different classification in NACE, so researcher must take case study to confirm the hypothesis. Case study of two bank related claims management companies confirmed that there is correlation between IFRS 9 introduction and increase of claims management sector in Croatia. From turnover and total assets data it is of clear that growth of those two financial statement elements in two Croatian claims management companies has been significant.

Without predictions and recording of credit losses, the presented financial result, being the subject of allocation, can be seriously overestimated and sometimes a condition for an organization's survival, even though it can generate excessive reserves of financial results. But regulation in one field of business must be covered with regulation in related field. Otherwise, there is possibility to delay problems, which sometimes can result with serious issues.

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SME FINANCIAL OPPORTUNITIES

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Abstract: *SME sector and its financing mechanisms have received significant attention in the last several decades. In today's business environment which is characterized by tremendous competitiveness and globalization of business, the discrepancy between the development of SMEs and availability and affordability of financial resources becomes a critical success factor. Despite comprehensive literature reviews on similar topics, studies focused on SMEs financing opportunities in Serbia are still at the initial phase. This paper aims to provide an overview of upsides and downsides of currently used SMEs' financing methods, to illustrate alternative financial sources such as venture capital, private equity and crowdfunding and to make recommendations in order to improve SME financing practices in Serbia.*

Keywords*: SMEs financing, access to finance, alternative financing sources, venture capital, crowdfunding*

1. INTRODUCTION

Over the last decade, Serbian government has made a significant progress in promoting the importance of small businesses and even announced 2016 as the year of entrepreneurship in Serbia (CCIS, 2016). Nevertheless, poor access to finance remains one of the biggest problems that affect the majority of SMEs in Serbia, especially in the sense of country's economic recovery and development. Compared to the regional EU counterparts, Serbia is ranked below them, and has to deal with some of the highest costs of finance (Schwab, 2016). The discrepancy between the development of SMEs and availability and affordability of financial resources for them is a very attractive topic.

SMEs have a vital role for economic and social development in Serbia. Their flexibility and responsiveness to changes give added value in the process of economic transformation. What is more, SMEs give support to the development of society by not only employing people, but also, concentrating on improvement of their abilities and skills. SMEs should be considered as an unavoidable part for creating a sustainable, competitive and well-developed economy.

Many bank business models are oriented to traditional corporate lending and are unadjusted to the special needs, risks, and profitability requirements of SMEs. Their funding structure, lack of risk management tools, and legal requirements force banks to redirect market and credit risks to enterprises through toughening their lending terms. The general lack of market knowledge about the SME sector and financial illiteracy makes it difficult for lenders to identify good financing opportunities. Traditional financing resources such as small business loans, overdrafts and personal credit cards represented a commonly used way of financing SME sector in Serbia (Rupeika-Apoga, 2014). Banks have been more aversive to provide loans even for companies that they already have had experience with. But also, new SMEs face numerous difficulties accessing alternative funding. Having in mind higher interest rates, shortened maturities and increased request for collateral, it seems logical that harmful situation in banking sector has affected real economy in Serbia. Therefore, we need to rethink traditional ways of financing SME sector. The rapid growth of alternative ways of financing opens a new door for significant amount of capital. Alternative finance is very broad term which covers several financial models, but in this paper we will be focused on venture capital, private equity funds and crowdfunding.

The small and medium-sized enterprises' operating environment is facing tremendous changes, especially considering globalization and economic integration. More serious competition has affected SMEs by new financing challenges and strong expectations from regulatory environment that will support development and improvement of SME sector. This paper aims to illustrate different financial sources for SMEs and make recommendations in order to improve SME financing practices around the country. Despite comprehensive literature reviews on similar topics, this kind of research is very rare in Serbia and has a potential to be very useful for different types of stakeholders, such as SMEs, banks, regulatory and financial institutions, international financial institutions, as well as companies which provide alternative ways of financing.

The first part of this paper relates to the definition of key features of SME segment, and the literature review. The financial challenges which SMEs face are described further on, as well as the need of traditional and alternative financing mechanisms. A special emphasis is placed on financial constraints in emerging economies such as Serbian economy and findings of research are presented in this part. Moreover, conclusions from a public discussion which was organized within USAID Business Enabling Project are presented as well. Finally, the paper provides a brief description of the economic importance of small and medium-sized enterprises and recommendations for practitioners and academics.

2. LITERATURE REVIEW

Angilella and Mazzù (2015) point out that innovative SMEs face more obstacles regarding financing, because of insufficient and unreliable financial data. Ryan et al. (2014) examine bank market power and SME credit constraints in an international, highly developed economy setting. They find that the effect of bank market power on financing constraints increases in financial systems that are more banks dependent. Keasey et al. (2015) examine the relationship between leverage and the willingness of listed family firms to share control. The results show that owners with a greater equity capital prefer to raise finance via debt rather than dilute their position via equity, and that young family firm's face a trade-off between their control risk aversion and the need for external financing.

After the 2008 financial crisis there has been an increasing focus on access to financing SMEs especially for small innovative firms. Credit conditions have been rationalized and analyses have shown that commercial banking financing is one of the most expensive ways of gathering financial assets. Lee et al. (2015) find that innovative firms are more likely to be turned down for finance than other firms, as well as that this situation worsened significantly during the crisis. They emphasize two issues in the financial system caused by the financial crisis. The first is a structural problem which restricts access to finance for innovative firms, and the second is a cyclical problem which has had a relatively more significant impact on non-innovative firms. Eniola et al. (2015) offer methods that could help entrepreneurs on alternative financing and discuss its positive impact on small and medium enterprises performance. Moving away from traditional ways of financing and pointing out the high information asymmetry and uncertainty, Davila et al. (2003) argue that venture capital has an important role in the first phase of a start-up. Moreover, in favour of the alternative ways of financing, Blow et al. (2015) find out that private equity owned firms are much better organized and therefore more successful relative to those that use traditional financial resources. Mollick (2014) points out that success of the project depends on its quality and suggests that practitioners and researchers should invest more effort towards an analytical understanding of crowdfunding.

Simmons-Süer (2016) raises very interesting question: Does financing matter after all? The author focuses on the role of the cost of capital and the importance of the type of financing. His findings challenge the concept that the type of financing is irrelevant to the investment process. Additionally, El Kalak et al. (2015) developed models for SMEs in order to forecast the bankruptcy probabilities and point out that there are differences between micro, small, and medium enterprises considering financial constraints. Moreover, the authors suggest that these categories need to be considered separately when modelling their credit risk and therefore financing opportunities. Boscoianu et al. (2015) propose new tools based on innovative mix of private management and governmental support on a new type of financial public-private partnership. Moreover, Rupeika-Apoga (2014) discusses the fact that it is vitally important to understand the financing needs of SMEs and entrepreneurs in order to overcome the main obstacles to finance availability and accessibility. Mason et al. (2015) focus on the constructs of entrepreneurial orientation and their ability to improve performance through innovative attitude, risk taking behaviour, aggressiveness, autonomy and competitive energy. Moreover, Prohorovsa and Beizitereb (2015) analyse the amounts and the structure of micro-enterprises financing with regards to the three main sources – bank loans, leasing and factoring.

The lack of non-bank financial institutions, capital markets and inter-firm financing mechanism is a crucial reason for the current situation in Serbian SME sector. Banks are not able to overcome all important financial gaps and are very limited in providing different financing options as business of their SME clients is growing. Some of the limitations affecting access to alternative ways of financing in Serbia are (USAID, 2012): no regulatory framework for non-bank lenders; under-developed leasing; under-developed debt capital markets; under-developed markets for inter-firm financing; underdeveloped Asset Appraisal Services. Having all previously said in mind, there is a need for alternative ways of financing in Serbia. According to the discussion presented, the study sets out following research questions:
RQ1. Access to finance is one of the main challenges for SMEs in Serbia.
RQ2. Alternative financing sources are becoming more important for SMEs in Serbia.

2.1. Key features of SME's

Small and medium-sized enterprises and entrepreneurs are the most efficient segment of the economy in almost all countries of the world. Individually, these enterprises make the largest contribution to the increase in employment, gross added value and turnover, and are, therefore, considered to be the backbone of growth and development of a national economy.

SMEs sector comprises over 99% of business entities in EU. For the EU economy growth, SMEs have produced 85% of new jobs in the last five years. Totally, SMEs in EU generate two-third of entire private sector employment in the EU economy (http://ec.europa.eu/growth/smes/). Similar is for the US economy since SMEs in this country also representing 99% of all businesses. This sector provides work for over 50% of employment in US private sector and creates two-thirds of net new private sector jobs in recent decades (https://ustr.gov/issue-areas/small-business). SMEs in US generate more than 50% US non-farm GDP, represent 98% of all U.S. exporters and 34% of US export revenue. From the data for 2013 (last known official data) SMEs in Serbia represent 99,8% of total business entities in Serbia. It also generates jobs for two-third of employment in Serbia and generates around 50% of GDP and 43% of non-financial export (Ministry of Economy, National Agency for Regional Development, 2014).

The role of SMEs is particularly important in emerging countries which are faced with problems of high unemployment, low level of economic activity, insufficient competition and lack of investment, and where large inefficient state-owned enterprises are still present. As a reliable source of employment, small and medium-sized enterprises have an important social role in absorbing surplus labour generated in the processes of transition and ownership transformation of state-owned and socially-owned enterprises.

Basic characteristics of small and medium-sized enterprises and entrepreneurs, primarily referring to their size, flexibility, propensity for innovative and risky ventures, and greater opportunity for specialization, enable them to adapt much easier to continuous changes in consumer demand and business conditions in the global market. In this way relative to large business systems, SMEs encourage the strengthening of competition, which results in the improvement of the quality of products and services and lower prices, innovations and development of new technologies, and the growth of the national economy in general. Additionally, successful SME management can be defined as flexible and well prepared to analyse the environment and to evaluate important information in order to crate a successful strategy for the enterprise (Vrchota & Rehor, 2016).

Survival, growth and development of small and medium-sized enterprises are primarily determined by funding opportunities from favorable sources. Limited access to the sources of finance, both on the money market and the capital market, especially in terms of prices and conditions of use, is perhaps the most important feature and the biggest problem of these companies. In an effort to provide the necessary funding from the most favorable sources, companies face, throughout their existence, the following dilemmas: should the investments and business development be financed from own resources or borrowed; how much capital should be obtained from loans; should the capital be provided by banks and other financial institutions, on the securities market, or by attracting formal or informal investors; and what is the desired capital structure. Depending on the objectives of growth and development, stage in the life cycle, financial status, nature of business activity and investment structure, the stability of cash flows, the relationship to risk management and the availability of certain resources, companies decide to obtain capital from one or a combination of funding sources, while aiming for the optimal capital structure. The number of available sources of financing SMEs is small and they meet their needs for capital much harder than large business systems (Milosevic et al, 2014).

4. RESEARCH METHOD

The study employed a mixed-method approach, having in mind that it incorporates both quantitative and qualitative data on financing SMEs (Lor, 2012). This method uses advantages of both qualitative and quantitative analysis, and creates a synergy (Lieberman, 2005). The study explored the contextual background of the SME financing and the role of banks and other financing sources available to SMEs in Serbia.

Accurate secondary data were used for addressing the research questions proposed above. The sources of data were carefully chosen using only high quality datasets, such as the OECD Scoreboard: Financing SMEs and Entrepreneurs 2015. Also, in this paper authors have used Survey on the access to finance of small and medium-sized enterprises in the euro area, conducted by European Central Bank in 2014 and European investment fund working paper - European Small Business Finance Outlook for December 2015. Additionally, results of the public dialogue performed by the WM Equity Partners with the support of USAID

Business Enabling Project in 2017 is used too. Moreover, we provide the explanation for any potential weakness of the data used in the study.

5. RESULTS

As indicated in RQ1 and issues of access to finance of Serbian SMEs, the study is focused on three broad issues. Firstly, the study analyses the readiness of banks to provide loans to SMEs. Secondly, the focal point is on the share of short-term SME loans as a proportion of total loans. Finally, the study sets up a scene for trends in SME loan rejection rates.

In 2013 some countries showed a reversal of the growth of SME loans. In particular, Columbia, Hungary, Ireland, New Zealand and Serbia all experienced negative loan growth in 2013, in contrast with 2011 (in the case of Serbia and Ireland) and 2012 (in the case of Columbia, New Zealand and Hungary). On the other hand, Estonia, Japan and United States experienced an increase in outstanding SME loans after years of decline (OECD, 2015b). Table 1 examines the consistency of growth patterns over time, by comparing the growth of outstanding SME loans between 2012 and 2013 with the growth trend recorded over the 2007-2012. It illustrates that in Serbia, the SME loan market in 2013 had not yet recovered from the financial crisis. SME loan growth turned negative in 2009, 2012 and 2013.

Table 1: Growth of SME business loans, 2007-2013

Country	2008	2009	2010	2011	2012	2013
Serbia	39.7	-0.7	5.9	2.8	-10	- 8.1

Source: OECD, 2015b

One would expect from banks to restrict long-term landing more than short-term lending under severe economic situations, but SMEs rely more on long-term landing in Serbia (see Table 2) which can be an interesting topic for further research.

Table 2: The share of short-term SME loans as a proportion of all SME loans

Country	2007	2008	2009	2010	2011	2012	2013
Serbia	34.9	31.6	34.	34.1	30.2	27.2	29.7

Source: OECD, 2015b

It is important to keep in mind that large firms are generally less dependent on bank finance than SMEs. This fact leads to the conclusion that SMEs usually have limited financing sources available which makes them dependant on the changing conditions in credit market. The perception of the riskiness of SME lending has changed over time, resulting in relatively higher average interest rates charged to SMEs. Between 2007 and 2013 the interest rate spread between large firms and SMEs widened significantly in most countries, with Serbia being one of the countries that is exception (OECD, 2015b). For the year 2013, for most of the countries from OECD research average interest rate declined for the SME sector. Other fees associated with SME landing and commissions, are usually not available and privately held by the banking sector. In the United Kingdom only 30% of all loans were collateralized in 2013, while in Serbia data suggest that collateral requirements were higher than 30% (USAID, 2012). This means that a higher percentage of SMEs had to provide collateral in order to access bank finance in previous years which is relative to negative economic changes. Data on collateral and rejection rates are usually unavailable for most countries, but the OECD (2015b) research has shown that loan applications illustrates that the most reasons for rejection are: 1) the terms and conditions of the loans on offer are seen as unacceptable 2) the average creditworthiness of loan applications have deteriorated or 3) banks are rationing credit. Next table represents trends in SME loan rejection rates from 2007 to 2013 in Serbia.

Table 3: Trends in SME loan rejection rates: 2007-13

Country	2007	2008	2009	2010	2011	2012	2013
Serbia	18.7	17.2	28.4	27.1	15.8	31.5	31.8

Source: OECD, 2015b

Lee at al. (2015) show that innovative firms find it harder to access finance especially after financial crisis. Moreover, Zeneli and Zaho (2014) suggest that information asymmetry between banks and enterprises are the main reason for the SMEs' gaining funds so hard. Moreover, they pointed out that the banks do not know the operating conditions and credit situation of SMEs. Onyiriuba (2015) educates bankers on how to identify, exploit, and optimize lending prospects and possibilities in the SME sector. It is very important to do good quality credit analysis having in mind SME business goals and banking liquidity issues. Within emerging countries such as Serbia, which, generally speaking, do not have an opportunity to raise money from

alternative sources or do not have access to equity financing markets, banking industry is the only way of financing. On the high side, 42% of SMEs in Greece, 23% in Ireland, 19% in Italy and 18% in Spain and Portugal mentioned access to finance as the most pressing problem, compared with around 6% of SMEs in Germany and 9% in Austria and Finland on the low side (ECB, 2014). At the euro area level, on balance, 4% of SMEs reported an increase in their demand for bank loans and 7% reported an increased need for bank overdrafts. The situation was similar for trade credit. Fixed investment and inventory and working capital remained the two most important factors affecting SMEs' need for external financing (ECB, 2014).

In order to analyse SME financing, ECB have done the research on the access to finance of enterprises. The results have shown the most important problems faced by SMEs over the first half of 2015, were for the Euro Area and the four largest economies. For the Eurozone, 10.8 percent of SMEs reported access to finance as their most important problem. Moreover, ECB have illustrated the relative importance of different funding sources used by Euro Area SMEs. On the other hand, bank products (loans and overdraft) remained the most popular financing products for SMEs (ECB, 2014).

In a EIF Working Paper, Moritz et al. (2015) have done an analysis of the use of various financing instruments by SMEs. The authors have done cluster analysis including 12,726 SMEs in 28 European countries and come to the conclusion that there are six distinct SME financing types: mixed-financed SMEs, state-subsidised SMEs, debt-financed SMEs, flexible-debt-financed SMEs, trade-financed SMEs and internally-financed SMEs. A holistic perspective taking into account the interrelationships between different financing instruments and their determinants can be a very interesting topic, especially because there is a lack of studies that have discussed and investigated this problem. Although the general economic outlook might have improved after the 2008 financial crisis, market situation in Europe is still fragile and unstable. Looking forward, Serbian SME sector will be faced with numerous problems especially with those linked to access to finance, but if this becomes one of the priorities, future investment climate will improve. As for the RQ2, and a potential increase of the importance of alternative financing sources in Serbia, it should be noted that the access to financing for SME sector should be improved and supported by financial reforms and development of alternative financing resources. When a company thinks about gathering money through external resources, one of the first decisions is to take bank loans. Financing by issuing bonds and shares is characteristic for developed countries more than for those struggling with unsecured market conditions. The tendency for companies to borrow from capital markets instead of banks is a common situation in the US although in Europe the most important external resources are bank loans and other banking products and services. From the supply side, SMEs in euro zone indicated a further improvement in banks' willingness to provide a loan in the period from October 2013 to March 2014 (-11% compared with -17% in the previous survey period). Broadly unchanged from the previous survey period, 25% of euro area SMEs applied for a bank loan, while 47% did not apply because of sufficient internal funds (ECB, 2014). As for the Serbia, main financing sources are business earnings and personal savings, mostly used for working capital financing (81%). According to the research, the most common source of external funding are bank loans (35%), overdrafts (8%) and finds and family borrowings (7%) (Ministry of Economy, National Agency for Regional Development, 2014).

Survey on the access to finance of small and medium-sized enterprises in the euro area which has been conducted by European Central Bank in April 2014, has shown that the financial situation for large euro area firms remains more favorable than for SMEs. Availability of financial funds depends on the company's development level. That is the most important reason for SMEs to focus attention to alternative resources such as venture capital funds and business angels. SMEs should try to find more competitive funding sources than bank loans. Looking ahead this is rather new, but necessary direction for Serbia in order to become innovative driven economy one day.

5.1. Alternative financial opportunities

Turning to the factors affecting the availability of external financing, in ECB survey (2014) respondents indicated that the general economic outlook continues to have a negative effect, but less so than previously (-12% compared with -24% in the previous survey round). Although access to finance is one of the most urgent problems in SMEs in most European countries, the situation significantly differs based on a country's development level and overall business environment. SMEs in Serbia are mostly using bank loans and overdrafts according to very risky and volatile market conditions, but the importance of alternative financing sources are growing, especially for innovative SMEs with very high growth potential. Although official data (Ministry of Economy, National Agency for Regional Development, 2014) imply that the Serbian economy is composed of over 97,000 small and medium-sized companies, these companies still have a significant need of external financing sources. For start up companies financing sources from the banking sector are particularly unapproachable.

In order to encourage public attention to diversified financing opportunities, adapted to each business stage development of domestic companies, WM Equity Partners, on the 14th September 2017, with the support of USAID Business Enabling Project, organized a public discussion related to that issue with the title “Public-private dialogue on equity-based financing for SME’s in Serbia”. Public discussion was very successful and brought together over 96 participants, of which 31% were representatives of small and medium-sized companies in Serbia, concerned in collecting new information and knowledge on this subject. Other participants included state institution representatives, regional equity funds managers, domestic and foreign financial institutions representatives. Participants were asked to evaluate current availability of alternative funding sources for SMEs in Serbia. The average score was 2.76 for being 1 – low and 5 – high. Second interesting question regards their opinion if SMEs in Serbia are sufficiently familiar with alternative sources of funding. The answers show that professionals in SME industry in Serbia with the vast majority of 92% think that SMEs are not familiar with the alternative source of finance.
Along with the previous question stands the fact that just 30% of participants had experience with Venture Capital and Private Equity funds so far in Serbia. Still, conclusions for the future of alternative source of funding in Serbia state increasing engagement of professional equity investors, with the clear current focus on IT industry and usage of IT solutions in other industries, is evident in the Serbian market.

The dialogue clearly indicated that professional equity investors bring much more than financial support to company, professionalization of management, improvement of organizational structure, improvement of financial management system, support to development of existing and new markets are just some of the added values of professional equity investors that go beyond pure financial support. This conclusion clearly indicate that it is newer about competitiveness between different financing sources (loan vs equity), but the right mix of financing sources available. At the beginning of cooperation with a professional equity investor, it is crucial to clearly define all responsibilities and activities, as well as a planned Exit strategy indicating that transparency and good corporate governance represent the basis of successful cooperation. Cooperation between management and owners, clearly defined product or service, stable cash flow in the later stages of development are the key requirements for professional equity investors. Acknowledged challenges in cooperation with professional equity investors are primarily related to more formal way of doing business. Management control can bring growth of certain costs and decline of profitability in the short-term, but in medium-term it contributes to growth and stability of business operations. Growth of venture capital industry in the region has been recognized through the cooperation between regional countries governments and international financial institutions.

Furthermore, Serbian Government recognizes the importance of innovation and entrepreneurship for the growth of domestic economy. The Government is actively working on establishing a more favorable climate for development of the local SME sector, with particular emphasis on improving the education process and the creation of favorable environment with less administrative burdens for companies. It could be concluded that there is always space for progress on the state level, but required improvements are also needed at the business level. Companies should invest in the process of innovation, promote professionalism in their operations, which will consequently create basis for a new generation of entrepreneurs.

Venture capital is financial capital provided to early-stage, high potential and high risk companies and it is usually focused on innovative fields of business (Rupeika-Apoga, 2014). Venture capital is a subset of private equity and can be provided by a group of venture capitalists or by an individual business angel. Private equity is a relatively new industry in much of the world but it will play an important part in the future. IT is the most relevant industry for venture capital, although European market shows a significantly higher preference for biotech. According to OECD research (2015a), venture capital represents a very small percentage of GDP, (less than 0.05%) for most of the countries, except for Israel and the US where the venture capital industry is more mature and represented respectively 0.38% and 0.28% of GDP in 2014. Venture capital investments in the United States represents more than 80% of the OECD total in 2014. The crisis rigorously distressed the venture capital industry, more later-stage financing than seed and start-up stage financing. Venture capital investments were higher in 2014 than in 2007 in just a few countries: Hungary, Korea, US, Russia and South Africa (OECD, 2015a).

Most European countries faced a sharp decline in venture capital after the financial crisis. This decline was uniform over venture capital for seed and early growth investments, later stage capital investments and growth capital investments (OECD, 2015b). Serbian equity market has started to develop before the financial crisis and it seems very encouraging. However, measures intended to support alternative ways of financing were not successful because of the unstimulating regulatory changes. Although there were chances for public and private co-investment in venture capital programmes it is not enough in comparison to other sources such as bank lending. Also, it should be kept in mind that venture capital is limited to mature markets and according to general opinion euro zone is one of them. Trends in venture capital are hard to analyse and interpret especially for SMEs and start-ups.

Referring to corporate venture capital (CVC), in Europe, Germany was the most active market in 2014 with investments of around EUR 2 billion (OECD, 2015a). Second most active market was the UK with corporate investments of around EUR 847 million. The activity in the European markets is significantly lower than in markets like the US (around EUR 23.4 billion) – driven in particular by Google and Intel – or China (around EUR 8.9 billion – driven by China based internet companies like Alibaba, Tencent or Baidu (who are also active beyond their home country and in particular in the US).

According to Serbian Government Strategy for SME one of the pillars of the Strategy is enhancement of access to financing sources. Within this pillar important dimensions are: development of new models for SME financing and improving capabilities of SME and entrepreneurs for different funding sources. When analysing new models of financing, strategy focuses on venture capital, private equity and business angels are seen as important sources for future SME funding in Serbia (Government of Serbia, 2015).

Up to now, there are just a few private equity funds that are active in Serbia. Also, in Serbia exists business angel's network that promotes entrepreneurship and investing culture. Nevertheless, this market is still on its early stage considering the growth potential for start-ups and entrepreneurship in Serbia. Having in mind that 2016 was promoted as the year of entrepreneurship, one could expect better support and potential for this industry in Serbia. One the other hand, bank-oriented economy is still limited factor for any other source of financing, since around 92% (National banks of Serbia, 2015; SEC, 2015) of all financial assets in Serbia hold banks.

Finally, for Serbia, interesting source of finance could be crowdfunding. Crowdfunding is a relatively new finance technique that uses the internet to match investors and borrowers for projects of common interest (OECD, 2015b). It could be a way to bypass the venture capital and business angels. Although it may impact future development of SME market, it needs good infrastructure in order to use all the benefits of crowdfunding. To be exact, crowdfunding depends on well-functioning bank instruments such as bank accounts, credit cards, online payment system, tax issues etc. The main advantage of using this type of financing is that it covers the finance gap that SMEs face. Consequently, crowdfunding presents some risk, but generally its market is in an upward phase and expects to rise in terms of finance potential. Non-financial benefits should be analyzed as well as financial, especially having in mind that idea owners are able to control business, validate R&D outputs, estimate the potential product demand and share knowledge, expertise and experience through founders' network. So far, there are just a couple of examples of using this technique for start-up financing in Serbia. But, for sure, the use of alternative ways of financing, such as crowdfunding, will be discovered and promoted in the future.

4. CONCLUSION

Survival, growth and development of small and medium-sized enterprises are primarily determined by funding opportunities from favourable sources. This study discusses the importance of different financing opportunities of SMEs. Moreover, it focuses on SMEs' access to finance and availability of alternative financing, as one of the major obstacles to doing business in Serbia. Results show that RQ1 (Access to finance is one of the main challenges for SMEs in Serbia) and RQ2 (Alternative financing sources are becoming more important for SMEs in Serbia) are fully supported. Many bank business models are oriented to traditional corporate lending and are unadjusted to the special needs, risks, and profitability requirements of SMEs. On the other hand, access to alternative financing is one of the main challenges for SME sector, both in Serbia and in well developed countries. Alternative financing for SME is a relatively new field of research, but it is, undoubtedly, very important for competitive and innovative economies.

Despite comprehensive literature reviews on similar topics, studies focused on limited financing options are still at the infantile phase. The study offers quality basis of information for different types of stakeholders, such as SMEs, banks, regulatory and financial institutions, academics, as well as companies which provide alternative ways of financing. The study incorporates both quantitative and qualitative data on financing SMEs. The analysis in this study has some limitations due to the fact that results are limited by the secondary data and the method, used in OECD Scoreboard and European investment fund working paper. However, the limitation of the analysis provides interesting research directions to further investigate alternative ways of financing in the context of improving overall performances of SME sector. Finally, the results can support policy makers in adapting access to finance options to the specific characteristics and needs of SMEs.

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