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## SADRŽAJ/CONTENTS

<b>PREDICTING CONSUMER INTENTION TO USE MOBILE BANKING SERVICES IN NORTH MACEDONIA</b> .....	5
MARINA MIJOSKA BELSOSKA, MARIJA TRPKOVA NESTOROVSKA, KALINA TRENEVSKA BLAGOEVA <i>Original scientific paper</i>	
<b>RECENT AGE-PERCEPTIONS IN HUNGARY</b> .....	13
RÉKA HEGEDÜS, MÁRIA TÖRŐCSIK, PÉTER NÉMETH <i>Preliminary communication</i>	
<b>THE EFFECTS OF ECONOMIC AND FINANCIAL UPDATES IN EU AND THE STRUCTURAL MODIFIES IN THE LAST PERIOD</b> .....	23
AHMET NIYAZI ÖZKER <i>Review paper</i>	
<b>THE IMPACT OF TERRORISM ON FDI INFLOWS: A META-ANALYSIS</b> .....	32
POLYXENI KECHAGIA, THEODORE METAXAS <i>Preliminary communication</i>	
<b>BULGARIAN NASCENT STUDENT TECHNOPRENEURS: MOTIVES, PERCEPTIONS OF BARRIERS AND STARTUP ACTIVITIES</b> .....	43
DESISLAVA YORDANOVA <i>Preliminary communication</i>	



# PREDICTING CONSUMER INTENTION TO USE MOBILE BANKING SERVICES IN NORTH MACEDONIA

IZVORNI ZNANSTVENI RAD/ ORIGINAL SCIENTIFIC PAPER

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**ABSTRACT**

Smartphones and mobile technologies are becoming increasingly available and affordable in the Republic of North Macedonia. Followed by this trend, many banks are providing banking services to customers via smartphones. They are increasingly investing in mobile channels by providing new mobile banking services. Therefore, the goal of this research is to examine predictors of consumer intention to use mobile banking services in North Macedonia. In order to get insights regarding the user adoption of m-banking services in the country, a survey was conducted among more than 150 mobile users. The research model proposed in this study examines the influence of several basic constructs that explain technology acceptance and innovation diffusion (performance expectancy, effort expectancy, social influence and facilitating conditions). In addition, its originality and practical implications is reflected in determining the significance of additional constructs that are specific for the m-banking domain, such as perceived risk and bank's reputation. The results of the empirical study indicate that three of the four basic constructs of the UTAUT model (performance expectancy, effort expectancy, and facilitating conditions) determine intention to use mobile banking, while social influence does not significantly influence mobile banking adoption in the sample. Regarding the two new constructs in the model, risk and bank's reputation, they are both confirmed as important antecedents of consumer intention to use m-banking in our sample. By highlighting the usefulness of integrating constructs from different theories of technology acceptance, this research is a holistic approach representing a solid base for future studies on the adoption of new technologies in the country. From practitioner's viewpoint, this research offers valuable insights for developing m-banking solutions.

**KEY WORDS:** mobile banking, technology adoption, Republic of North Macedonia

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**1. INTRODUCTION**

Smartphones have become an inevitable device and an integral part of everybody's lives. Followed by the mobile technology development and high rate of mobile internet usage worldwide, mobile banking has become prominent technological innovation in the banking sector giving a competitive edge over traditional banking. The extensive use of mobile devices, along with the digital transformation, has brought to customers an added value regarding mobile banking (m-banking) services, showing to be beneficial for banks, as well (Laukkanen et al., 2007).

Mobile phone banking or m-banking is an emerging facet of electronic banking that, unlike traditional phone banking services which offer very limited functions, is a rich platform for automated banking and other financial services (Wessels & Drennan, 2010). Although researchers use various terms to refer to mobile banking (like m-banking, branchless banking, m-payments, m-transfers, m-finance, or pocket banking (Shaikh & Karjaluo, 2015), in general it can be defined as a channel whereby the customer interacts with a bank via a mobile device, such as a mobile phone, smartphone or personal digital assistant (PDA) (Barnes & Corbitt, 2003). M-banking refers to provision of banking and financial services with the help of mobile telecommunication devices such as a smartphone or tablet (Chandran, 2014), like viewing account balances, making transfers between accounts, or paying bills (Laukkanen & Cruz, 2010). The scope of offered services may differ, but generally includes facilities to conduct bank transactions, to administer accounts and to access customized information. M-banking can take place through short message service (SMS), mobile web or application.

Consumer use of mobile banking applications is accelerating at a rapid pace worldwide. For example, in the US, nearly one-third of people (31%) use mobile banking more than any other app on their smartphone in 2018. In the UK, mobile banking is already the most popular way to bank. As of March 2018, the UK headquartered Barclays mobile banking app had the highest traffic of banking apps in Europe with 7 million unique visitors. The Russian bank Sberbank reportedly had over 30 million individuals using their mobile app. In Germany, approximately 33 million individuals use online banking, with a digital population of around 60 percent using online banking services ([www.statista.com](http://www.statista.com)). In the Netherlands, mobile payments and mobile banking have also grown extremely popular. (Mobile banking and mobile payments in Europe, Report, 2019). In spite that, the adoption of mobile banking has been slower for the developing countries compared to developed ones (Abdinoor & Mbamba, 2017; Pavithran et al., 2014).

Smartphones and mobile technologies are becoming increasingly available and affordable in North Macedonia. The penetration rate of smartphones is increasing globally and smartphones are the most used devices for access to the Internet in the country (81% of Internet users in 2018, and mostly among persons aged 15-24 (91.8%) (State Statistical Office, 2019). The continuous expansion of technological innovations especially in the banking sector is changing the way banks operate resulting in the introduction of mobile banking in the country. Banks are increasingly investing in mobile channels by providing new mobile banking services. However, in the country not many studies investigate factors that determine the adoption of mobile banking which may help banks to design more suitable and affordable mobile services for customers. Though many individuals worldwide opt for mobile banking as a mean for their daily banking transactions, the adoption of mobile banking has been at its early stage of adoption in the country. Therefore, this study is the first attempt to fill this gap by predicting factors that affect consumer intention to use mobile banking services in the country, as developing country.

## 2. LITERATURE REVIEW AND HYPOTHESES

The exponential growth and fast diffusion of information and communication technologies is considered strategically important in a business context (Hilmer, 2009). Today there are various models and theories among practitioners and academics widely used in order to predict the use and spread of technology. The field of theories and models that investigates successful technology diffusion is broad and can be categorised in various ways. According to Hilmer (2009), common technology adoption theories, can be grouped as: Diffusion Theories, User Acceptance Theories, Decision Making Theory (including Problem Solving Theories), Personality Theories and Organisation Structure Theories (Hillmer, 2009). Some of the models are widely used among practitioners, such as 'the diffusion of innovation' DOI, 'the technology lifecycle theory' and 'the rational choice theory'. Others are more commonly used in the academic world, such as 'the Theory of Reasoned Action' TRA, 'the Theory of Planned Behaviour' TPB, 'the Technology Acceptance Models' TAM, and the unified model UTAUT (Hillmer, 2009).

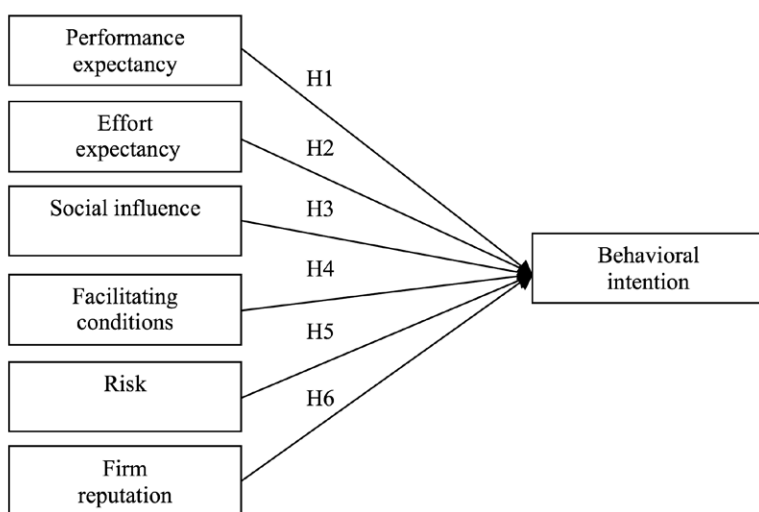
Theories of adoption of new technologies are explanations of the factors influencing the decision making over adoption and usage of new technologies by the users. Adoption is an individual process detailing the series of stages one undergoes from first hearing about a product to finally adopting it. Adoption in the context of mobile banking means acceptance and being able to accept a new technology as it is introduced; acceptance of the service means a customer willing to use the service. For example, Mallat et al. (2004, 2007) explains that if a customer chooses to adopt mobile banking, they will be able to obtain and interact with mobile services anytime and anywhere which in turn initiate great value for them.

The research model in this survey is based on Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al, 2003). UTAUT defines four key factors (i.e., performance expectancy, effort expectancy, social influence, and facilitating conditions) and moderators (i.e., age, gender, experience, and voluntariness) related to predicting behavioural intention to use a technology. Venkatesh, Thong & Xu (2012) proposed and tested UTAUT2, which incorporates new constructs (i.e., hedonic motivation, price value, and habit). In the latest paper – Venkatesh et al. (2016) gave an overall evaluation of the use, developments, research directions, limitations, gaps and opportunities and directions for further research. Consumers as a user type served as the context for the extensions in UTAUT2 (Venkatesh et al., 2012) and, in particular, for the new endogenous mechanism underlying the relationship between price value (not relevant in organizational context) and behavioural intention. Facilitating conditions and habit influence both behavioural intention and technology use. Venkatesh et al. (2016) suggested that the main effects in UTAUT2 should serve as the baseline model of future research for parsimony and refining current context effects and/or identifying new context effects along the following four dimensions: environment, location, organization, and event. In another work, Martins, Oliveira & Popovic (2014) developed a conceptual model that combines the UTAUT with the perceived risk as added construct to explain behavioural intention and internet banking use behaviour. Moreover, adding a construct (perceived information security) to the UTAUT and altering the original model, Alshare & Mousa (2014) extended the applicability of the model to different contexts such as consumers, a developing country, and a new technology (mobile payment device).

Lallmahomed et al. (2013) added new main effect in the classical UTAUT while investigating consumer behaviour online. Namely they proved that hedonic performance expectancy has a positive effect on behavioural intention. Saeed (2013) analysed UTAUT determinants in mobile banking. Based on this perspective, perceived financial control is proposed as the main value driver and its relationship with use intentions and channel preference along with ease of navigation and facilitating conditions is examined in the context of mobile banking. Concerning recent developments in research of mobile banking using UTAUT2 we can conclude that they are strictly focused on various aspects such as type of product or service, demographics, geographical area, and are using specific additions (extension) appropriate for the field of research. Having in mind the usability and popularity of UTAUT2 there is no doubt that further extension will be proposed to study technology acceptance on individual level such as mobile banking in our case.

The research model in this survey is based on UTAUT (Venkatesh et al., 2003). This model provides a framework for explaining and predicting technology use. UTAUT is a generic model that can facilitate the explanation of the factors that influence technology acceptance, or in our case mobile banking behavior. However, there are many extensions to the basic model and we are using some additional constructs that are proven to be essential for explaining mobile banking adoption. Original constructs that we examined are: performance expectancy - the degree to which an individual believes that using a particular technology would improve his/her performance; effort expectancy- the degree of simplicity associated with the use of a particular system; social influence - the degree to which an individual perceives that others believe he or she should use a particular technology; facilitating conditions - the degree to which an individual believes that resources exist to support the use of a particular technology; and, attitude toward using technology - the degree to which an individual believes he or she should use it. As extensions of the original model, we added two more constructs: perceived risk and firm reputation that are proven to be determinants on mobile banking adoption. Based on the discussion above, the proposed research model is presented in Figure 1 and the following research hypothesis are set.

**Figure 1.** The research model



Source: Created by authors

Performance expectancy (PE) is the degree to which an individual believes that using mobile banking will increase his/her job performance (Venkatesh et al., 2012). PE indicates that users perceive use of mobile applications as beneficial to their performance and it is recognized as a key factor for a user to accept the m-banking technology. PE actually measures the degree to which a person believes that using mobile banking services will help them in performing banking transactions (Tarhini et al., 2016). Oliveira et al. (2014) and Sarfaraz (2017) have come to the conclusion that performance expectancy has a total effect on behavioral intentions towards mobile banking. Many authors that adopt UTAUT to analyze m-banking adoption (Baptista & Oliveira 2015; Basri, 2018; Savić & Pešterac, 2019) have empirically shown that mobile banking users believe that performance expectancy is one of the most important antecedents of behavioral intention.

Effort expectancy (EE). Venkatesh et al. (2003) define effort expectancy as the degree of ease associated with the use of the system. The easier the mobile banking is to use, the greater the likelihood that clients will use it to conduct their banking transactions. In the m-banking adoption, the positive impact of effort expectancy on the behavioral intention is recognized as important determinant of behavioural intention (Bankole et al., 2011; Bhatiazevi, 2016; Albashrawi et al., 2017). Ease of use is significantly related with behavioral intention because mobile banking is new to the customers. Hence, banks should strive to ensure that transactions could be conducted via mobile phones with ease meaning less effort.

Facilitating condition (FC) is the infrastructure supporting the use of technology (Venkatesh et al., 2012) meaning that better facilitating conditions will result in greater mobile banking usage. Facilitating conditions are defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system (Venkatesh et al., 2003). Since the use of mobile banking services requires the availability of appropriate resources, knowledge, and technology infrastructure, it is logical to assume that of these conditions a considerable extent depends the behavioural intention of an individual to use mobile banking. This assumption was empirically proven by many (Zhou et al., 2010, Witeepanich et al., 2013, Afshan & Sharif 2016).

Social influence (SI) refers to the degree to which an individual perceives that important others believe he or she should use the new system (Venkatesh et al., 2003), and is particularly important in the early stages of new technology development when most users do not have experience or information about technology, and therefore rely on public opinion (Marinkovic & Kalinic, 2017). In fact, it concerns the influence of people from the immediate surroundings of the individual (family, friends, and superiors) on his or her perceptions and behavior related to a certain activity. Many studies have confirmed that social influence is directly related to the intention of an individual to use mobile banking services (Bhatiasevi, 2015; Tan & Leby Lau, 2016). Moreover, in some research this factor has been singled out as the most significant when it comes to the intention of using mobile banking (Venkatesh & Zhang, 2010; Yu, 2012). Gu et al. (2009) found that social influence has no significant effect on behavioral intention pertaining to mobile application usage. They reported that among university students, who are members of generation Y, social influence does not significantly influence mobile banking adoption (Govender & Sihlali, 2014).

Perceived risk is the “uncertainty about the outcome of the use of the innovation” (Gerrard & Cunningham, 2003). In fact, perception of risk among individuals has been proved in technology adoption literature as an important element in acquiring new technology or services (Laforet & Li, 2003). Many authors have studied the impact of risk on the adoption of mobile banking building upon the premise that m-banking is perceived to be riskier than traditional banking (Cunningham et al., 2005). Luo et al. (2010) analyzed the impact of both trust and risk in m - banking adoption.

A firm’s reputation reflects the customers’ perception of its capability to the deliver the service effectively, the credibility of the organization, and the reliability in its business engagement (Yasin & Bozbay, 2011). It plays an important role in the formation of confidence and the intention to use the offered services (Kim et al., 2009). It increases customer’s recognition of a newly introduced service and helps maintain confidence in future transactions (Kim et al., 2009). Thus, firm reputation is a significant factor in user’s initial trust. It is recognized that strongly influences the intention to use m-banking services (Oliveira et al., 2014).

### 3. METHODOLOGY AND RESULTS

The purpose of this research is to identify the relationships between important factors and acceptance of mobile banking in the Republic of North Macedonia. It has been recognized in general that youth are very representative sample of today’s online population. Population of interest are different groups who are adopting and using mobile banking: young people (mostly students) aged 18-24, young employed people aged 25-35 and more mature employed professionals over 35 years of age. The data were collected at the university campus and from the different sectors of the business community. The survey was conducted during April and May 2019 among more than 150 mobile users. The sample is comprised of 139 survey responses and their demographic structure is presented in Table 1.

**Table 1.** Demographics of the respondents

Demographics	Categories	Percentage (%)
Gender	Male	44.60
	Female	55.40
Age	18-24	38.13
	25-35	19.42
	Above 35	42.45

Education	High school degree	5.76
	Student	35.25
	University graduate	58.99
Employment status	Unemployed	36.69
	Employed	63.31
Usage frequency of mobile banking	Every day	17.27
	At least once a week	40.29
	At least once a month	18.71
	Very little( at least once at six months)	23.74
Usual access point for mobile banking	Via smartphone (mobile web)	30.94
	Via smartphone with mobile application	66.19
	Via Tablet	2.88

Source: Created by authors

The dataset was examined for missing data and presence of outliers. The presence of outliers was not detected, and the few missing data were replaced with common procedure. The dataset was acceptable for further analysis, where the first step was the reliability of the scale of the variables. Reliability just means that a scale should consistently reflect the construct it is measuring (Field, 2005). Questionnaire was constructed to develop eight variables. To confirm their reliability, Cronbach's was calculated by the following formula:

$$\alpha = \frac{k \times \bar{c}}{\bar{v} + (k \times 1)\bar{c}}$$

where  $k$  is the number of scale items,  $\bar{c}$  is the average of all covariances between items and  $\bar{v}$  is the average variance of each item. The results of the reliability analysis and the defined variables are presented in Table 2.

**Table 2.** Defined variables and Scale Reliabilities

Variable	Cronbach's $\alpha$	Number of items included
Behavioral intention	0.792	4
Performance expectancy	0.869	4
Effort expectancy	0.776	4
Social influence	0.854	5
Facilitating conditions	0.794	4
Risk	0.901	4
Firm Reputation	0.871	3

Source: Created by authors

From the presented results in Table 2 seven variables can be identified, with the number of items they include. The dependent variable is Behavioural intention, and other six variables are factors or independent variables that have potential influence of mobile banking adoption. All of the variables can be included in further analysis, since their reliability coefficients are greater than 0.7 which is acceptable value for reliable scale (Hair et al., 2005). Additionally, reliability coefficients where one of the items is excluded from the construct are also checked. In all seven variables they have reliability coefficient near the overall Cronbach's of the variable, which contributes to their reliability and proves that we are not to expect any one item to affect the overall reliability.

In order to estimate the influence of the seven factors on the behavioral intention to adopt mobile banking, single regression model is used for each factor. The results are presented in Table 3.

**Table 3.** Single regression models for analysed variables

Variable	Coef.	Std. Error	t-stat.	Sign.	R <sup>2</sup>	Adj. R <sup>2</sup>	Durbin-Watson	F-stat.	Sign. F-stat.
Performance expectancy	0.648	0.078	8.306	0.000	0.335	0.330	2.085	68.99	0.000
Effort expectancy	0.437	0.093	4.695	0.000	0.139	0.132	2.043	22.04	0.000
Social influence	0.077	0.006	1.164	0.246	0.010	0.003	1.872	1.35	0.246
Facilitating conditions	0.424	0.086	4.925	0.000	0.150	0.144	2.116	24.25	0.000
Risk	0.321	0.070	4.593	0.000	0.133	0.127	2.061	21.09	0.000
Firm reputation	0.337	0.080	4.221	0.000	0.115	0.109	2.189	17.81	0.000

Source: Created by authors

From the descriptive statistics (presented in Table 4), we can conclude that all means are around 4 on the five point Likert scale which means that these factors are perceived as important. Social influence has the lowest mean which is result of the perception that this construct is not relevant. Results from the single regression models indicate that individually all independent variables have influence on the behavioral intention to adopt mobile banking, except one: Social influence. All coefficients are statistically significant and have positive sign. Coefficients of determination have relatively low values, since it is expected in model with only one explanatory variable. Durbin-Watson statistic is near two in all models with statistically significant coefficient indicating no autocorrelation of the residuals. Also the F-statistic is statistically significant at 0.01 level, representing good fit of each individual regression model.

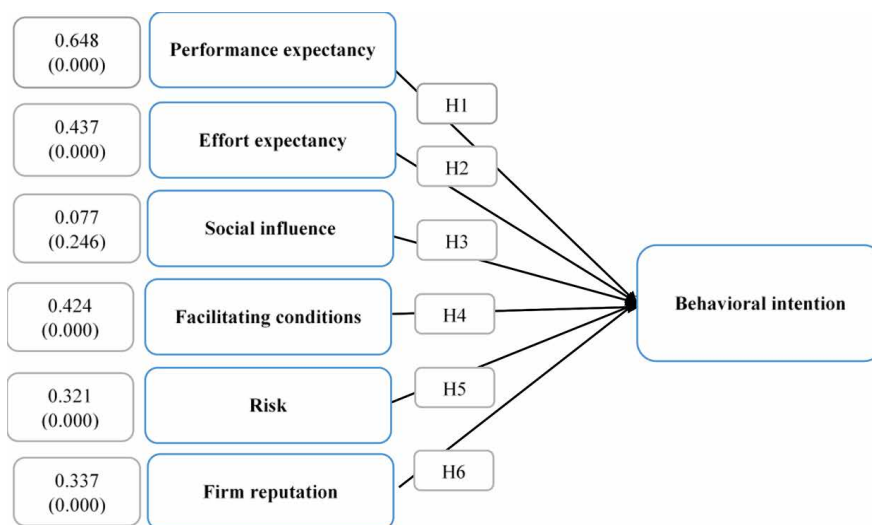
**Table 4.** Descriptive statistics

	Performance expectancy	Effort expectancy	Social influence	Facilitation conditions	Risk	Firm reputation	Behavioural intention
Mean	4.36	4.27	2.71	4.21	3.73	4.08	4.05
Std.dev	0.71	0.68	1.02	0.73	0.90	0.80	0.79

Source: Created by authors

The overall research model is represented in Figure 2. Boxes on the left side of the model include single regression coefficients and their significance (in brackets).

**Figure 2.** Research model with estimated regression coefficients



Source: Created by authors

The results of the empirical study are supporting the proposed model and some specific relationships are unveiled. UTAUT basic constructs, performance expectancy, effort expectancy and facilitating conditions prove to be significant in behavioural intention to use m-banking in our sample. Still, in our research, social influence does not significantly influence mobile banking adoption. This is so due to the age characteristic of the respondents, which are mainly young people, students and young employees. Regarding the two new constructs in the model, risk and firm reputation, they are both confirmed as important antecedents of consumer intention to use m-banking in our sample. This research is a holistic approach representing a solid base for future studies on the adoption of new technologies in the country. From practitioner's viewpoint, this research offers valuable insights for developing m-banking solutions.

#### 4. CONCLUSION

M-banking is inevitable in conducting banking services not only in developed countries, but is gaining popularity in developing countries as well. The convenience and quickness of completing financial transactions via mobile devices is attracting consumers' attention, and the pressure of digital transformation will only increase demand for mobile banking services. Mobile banking has become prominent technological innovation in the banking sector worldwide giving a competitive edge over traditional banking.

The goal of this research is to identify the key determinates of consumer intention to use mobile banking services, by extending the basic UTAUT model with specific constructs which are hypothesised to influence intention to use mobile banking. Research hypotheses were tested using a single regression analysis. The results of the empirical study are supporting the proposed research model and some specific relationships are unveiled. UTAUT basic constructs, performance expectancy, effort expectancy and facilitating conditions prove to be significant in behavioural intention to use m-banking in our sample. However, in our research, social influence does not significantly influence mobile banking adoption. This is mainly due to the age of the respondents, which are mainly younger people, students and young employees that are very self-confident in using mobile technologies. Regarding the two new constructs in the model, risk and firm reputation, they are both confirmed as important antecedents of consumer intention to use m-banking in our sample. Perceived risk is particularly relevant determinant for the Republic of North Macedonia having in mind the size of the market, underdeveloped delivery channels, and inability to use online payment and customs barriers. Research limitations of this study mainly relate to a small sample of respondents and neglecting the moderator's effects when it comes to the demographic characteristics of the respondents. Moderating effects of demographic factors can be investigated in future research and may contribute in deeper understanding of consumers' attitudinal intention to adopt mobile banking in the country. The essence and nature of consumers' behaviour is dynamic and complex, and therefore further research can be focused on longitudinal studies to compare changes in consumers' behaviours and explain different predictors. From practitioner's viewpoint, this research offers valuable insights for developing m-banking solutions.

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## PREDVIĐANJE PRIHVAĆANJA USLUGA MOBILNOG BANKARSTVA U SJEVERNOJ MAKEDONIJI KOD POTROŠAČA

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### SAŽETAK

Pametni telefoni i mobilne tehnologije postaju sve dostupniji i pristupačniji u Republici Sjevernoj Makedoniji. Prateći ovaj trend, brojne banke klijentima pružaju bankarske usluge putem pametnih telefona. Sve više ulažu u mobilne kanale pružajući nove usluge mobilnog bankarstva. Stoga je cilj ovog istraživanja ispitati prediktore namjere potrošača da koriste usluge mobilnog bankarstva u sjevernoj Makedoniji. Kako bi se stekao uvid u prihvaćanje usluga m-bankarstva u zemlji, provedeno je istraživanje među više od 150 korisnika mobilnih uređaja. Model istraživanja predložen u ovoj studiji ispituje utjecaj nekoliko osnovnih konstrukata koji objašnjavaju prihvaćanje tehnologije i difuziju inovacija (očekivane performanse, očekivani napori, društveni utjecaj i olakšavajući uvjeti). Osim toga, njegova originalnost i praktičnost se ogledaju u određivanju značaja dodatnih konstrukata koji su specifični za m-bankarstvo, poput percipiranog rizika i reputacije banke. Rezultati empirijskog istraživanja pokazuju da tri od četiri osnovna konstrukta UTAUT modela (očekivane performanse, očekivani napori i olakšavajući uvjeti) određuju namjeru uporabe mobilnog bankarstva, dok društveni utjecaj nema značajan utjecaj na prihvaćanje mobilnog bankarstva. Što se tiče dva nova konstrukta u modelu, rizika i ugleda banke, oba su potvrđena kao važni prethodnici namjere potrošača da koriste m-bankarstvo. Ističući korisnost integriranja konstrukata iz različitih teorija prihvaćanja tehnologije, ovo istraživanje u svom holističkom pristupu predstavlja solidnu osnovu za buduće studije o usvajanju novih tehnologija u zemlji. Sa stajališta praktičara, ovo istraživanje nudi vrijedne uvide za razvoj mobilnog bankarstva.

**KLJUČNE RIJEČI:** mobilno bankarstvo, usvajanje tehnologije, Republika Sjeverna Makedonija

# RECENT AGE-PERCEPTIONS IN HUNGARY

PRELIMINARY COMMUNICATION /PRETHODNO PRIOPĆENJE

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**ABSTRACT**

Like in many developed countries, the ageing tendency of the population is typical also for the Hungarian age structure, which requires greater attention of the society in the economic, social and health aspects, furthermore, it causes changes in cooperation of generations and their habits and norms. It is related among others to social mobility and the fragmentation of family relationships, which may mean the separation of the older generation from the younger one, therefore children do not get to know older people's lives or only just a few patterns of those, and they lack coexistence and cooperation opportunities. This situation is influenced by nowadays' trends (for example anti-ageing), social impacts and expectations associated with the natural ageing process; developing a negative image of ageing in many (especially young) people. For these reasons the study seeks associations with ageing and age-determination in respect of generations to recognise how positive or negative their points of view or feelings are, and how they influence their everyday lives. The results were obtained by using four evaluation methods: personal and online researches, taking of nationally representative samples, organising three focus group discussions, and interviewing master's students. The results show that the Hungarian respondents have preferably negative opinions about the ageing-related terms. This aspect may have a negative influence on the attitudes of the generations about their subjective value judgment regarding themselves, their age and life situation.

**KEY WORDS:** ageing, Hungary, generations, associations

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**1. INTRODUCTION**

Ageing has a significant impact on societies and different cultures express age in different ways. The study's aim is to get acquainted with the mentality and beliefs of Hungarian people about ageing. Within the framework of the EFOP-3.6.1-16-2016-00004 project called "Comprehensive improvements to the University of Pécs in order to achieve the smart specialisation" this study seeks associations with ageing (in forms of words and attitude statements) and age-determination in respect of generations to recognise how positive or negative their points of view or feelings are, and how they influence their everyday lives. For this, the study examines whether there are any connections between age-associations and subjective feelings about health, generation-relationships or lifestyle. Furthermore, what do the Hungarian people feel when they hear "young", "middle-age", "elderly" or "old" terms? Realising the various associations is an important task, because these have significant impacts on our behaviours, feelings or perceptions, which could influence the lifestyles, cultures of people or nations.

The perceived differences about ageing-assessment show equally similarities, contrast or contradictions between cultures, and these assessments changed historically in time, or by judge-changes in the nations; so, for this reason, different attitudes and practices have evolved towards ageing, ageing-perceptions or death (Cokayne, 2005; Montepare, 2009; Turai, 2009; Meyers, 2009; Chopik et al., 2018). In olden times there was much more appreciation expressed towards the old people than nowadays in general. Present Eastern cultures have socialised in the strong respect of the elderly, where it is a duty to care for the elderly within the family. In these societies, the oldest family members often play a leading role in the family and play a key role in educating grandchildren (Yamato, 1993; Yoon, 2013). Unfortunately, Western cultures place emphasis on activity rather than contemplation. Youth is respected and the elderly are often removed from their communities to hospitals, nursing homes or left alone in ageing villages, so younger children can have little in common and personal experience with older people. According to Erikson (in: Jere, 2016), the fear of ageing in Western societies keeps those living in it from being able to live a full life. There has been a lot of shame about ageing (especially about physical signs) so older people may feel something is wrong with them, they have become worthless

to the society (Johnson, 2005) and there are examples of the different age judgments of the generations (among others Kastenbaum et al., 1972; Cohen, 1983; Abrams & Hogg, 1988).

Ageing individuals can also be typified based on attitudes towards ageing (for example senior-marketing in the 1990s). Those who are balanced and accept their age can be thought of as a sovereign, age-appropriate ageing stratum. The members of the group that do not identify with ageing demonstratively reject their age or activities and products related to their age, follow and wear the style and taste of young people. Traditional seniors are self-sufficient, still active, but devalue themselves and their bodies along with their age and accept the stereotypical social perception of the elderly.

## 2. THE SITUATION OF AGEING IN HUNGARY

### 2.1. Presentation of relevant literature

Age distribution in Hungary is also characterised by the ageing of the population, i.e. the proportion of the elderly within the total population is gradually increasing (OECD, 2017). The process requires more attention of the society in terms of economic, social, and health care aspects, but also brings changes in the co-operation of generations, habits, and norms that affect private life and lifestyle changes. It is related to social mobility and the fragmentation of families. The older age group is often separated from the younger generations, so children do not see or see only a few samples of the lives of the elderly (Bromley, 1966). The lack of real information is replaced by images from the environment, e.g. displaying the elderly in the media, which is largely focused on more negative factors. In this way, the thinking of young people can change in the context of ageing, new patterns of behaviour may appear compared to old times. Mostly in today's Hungarian advertisements, the elderly rarely appear, and even if they do, in a negative context (Jászberényi, 2008; Csizmadia, Győri Szabó & Kovács, 2015): as the target of a joke, a sad, bad counsellor, a sick person or a person in an inessential background role. Elderly is included only if they have specifically 'old' roles (e.g. Santa). Based on the content of the advertisements, the conclusion may be that – according to the advertising industry – the 'old' is not good for anything, so it is not worthwhile to deal with them.

Today's consumers are looking for their identity and reference points; continually rethinking, interpreting their attitudes towards themselves and their health status, or to the naturally occurring ageing process among the trends of our time (self-culture, individualism, health, etc.) and the social effects, expectations, sharing interests, political and cultural relations. By researching trends, new consumer behaviour patterns, target groups and marketing solutions can be found in the markets (Horx & Wippermann, 1996; Törőcsik, 2011). One of the most significant megatrends present today is the youth-desire (Törőcsik, 2017). In many cases, people are willing to spend a lot of money to preserve youth, or at least its appearance, to slow down the ageing process, to maintain their youthful beauty, their health and flexibility. For this reason, many products, services, and technologies can be found in the market, promising youth and its preservation. Maintaining and demonstrating marketability is also determinative for relationships and work in shaping our body besides the expression of our personality.

In addition, the loosening and disappearance of generation borders can be observed (Rubin & Berntsen, 2006; Törőcsik, 2011; Törőcsik & Németh, 2018). The previously clearly defined life-streams become fragmented, their borders are blurred, and they show very different patterns per person, individually (some sections disappear while others are significantly lengthened). Kids want to get into the young age-group as soon as possible. Young people later want to be independent and taking responsibility for others, and later want to start adult life. Older people mostly desire to stay young, as the whole society prefers it. Classification of age sections becomes increasingly difficult and it is hard to establish rigid boundaries, to categorise age-related groups. Today's Hungarians have set the young generation between 16.5 and 30 years on average, estimated between 40.5-51 years for the middle generation and 64-73 years for the old age, among which there are not listed "gaps, spaces life years", and transitional periods (Hegedüs, Törőcsik & Németh, 2018). As the age grows, the boundaries of large age groups are increasingly pushed. Youngsters identify the initial and endpoints of the classic generations (young, middle and old) compared to the average, and think in wider intervals than the older generations. Subjective divergences of opinion also affect consciousness, especially among young people, who are likely to live longer and see their 20s as the peak of their abilities. Over the years, human life lasts longer than human identity (Turai, 2009), the sense of completeness is sustainable, and that is due to the unequal distribution of positive and negative content culturally assigned to certain stages of life, so self-identification becomes problematic after a given age. On the other hand, individuals often have a feeling of distance; they do not really feel part of their real, own human lives.

Age alone does not arbitrate whether the individual is considered old or not, much more important factors are the physical and mental abilities (Dobossy & Virágh, 2004). According to the Central Statistical Office's research at the beginning of the 2000s, Hungarians mostly considered old people who were unable to care for themselves (60.6%),

mentally degraded (50.5%), or their health deteriorated (48.6%). By 2016, the list of the most important criteria for old age changed (Monostori & Gresits, 2018). The first factor is the “difficult to adapt to change” aspect (99.5%), preceding the “unable to care for themselves, rely on others” (58.7%) or mentally impaired (55%) factors. However, it is clear that there is a negative approach to old age. This attitude is complemented by the negative vision of the Hungarian youth, the inexperience, and their loss of hope. The Hungarian Youth Research 2016 (Székely & Szabó, 2017) surveyed 8,000 young people aged 15–29 between September and November 2016 in Hungary. The research is representative of the population aged 15-29 in Hungary, according to the area, settlement types, age groups and gender. In 2016, respondents saw the most pressing problems of their generation in financial difficulties, insecurity and impoverishment, despite the fact that their financial situation was considered to be much more favourable compared to the 2012 data, and almost half of them classified themselves in the middle social class. While at the turn of the millennium, the most acute problems of young people were settled around housing, impecuniosity and unemployment, in 2004 the issue of drug and alcohol consumption and the outlook of the unprecedented future was most concerned by those aged 15-29. In the 2008 data, the lack of money, poverty, unemployment, and the unprecedented, uncertain future came to the top of the most pressing problems, which dominated in 2012, also the hopelessness, the fear of the future are clearly visible.

The study derived from the literature that in our western culture, socialisation is negative in the face of ageing and not just the youth, but most people think destructively about ageing. There is a scarcity of studies, statistical statements or marketing materials on the ageing topic that would help change thinking in Hungary. For this reason, the study is meant to get a deeper picture of the thinking of Hungarian respondents, so that later marketing materials can be prepared to improve the trend.

## 2.2. Evaluation of methods

In order to gain a deeper understanding of the Hungarian population’s opinion about ageing, the study uses both quantitative and qualitative methods; so the results were obtained using four methods:

1. interviewing nationally representative *personal* samples (n=2001; all interviews were conducted by a trained interviewer in respondents’ homes, and the participants were chosen by random-walk technique) and
2. *online* research’s (n=1038) samples.

Both are representative of the Hungarian population aged 15-74 in gender, age groups (10-year intervals) and the region of residence. Variables included in the analysis were as follows: gender, generation, type of settlement, educational attainment, and subjective judgment of income situation. In the researches, the same questions were used for comparability and detecting the discrepancies between the online and personal responses. In the course of the discussion, only the results that showed significant differences in statistical terms are presented from the online research and are compared to the personal sample in writing. The main demographic characteristics of the interviewed people are shown in Table 1, by generations and gender. Responses were quantitative and analysed for the assessment of the hypotheses below:

H1: the generations think differently about ageing-candidate terms.

H2: there is a significant, positive relationship between the positive attitudes and feelings about ageing and the point of view about different life-factors (for example relationship between generations, lifestyle, health) of the respondents.

Chi-square analysis was used to answer the hypotheses and all analyses were performed at a level of significance set at 5%. To run the analyses IBM SPSS Statistics version 25 was used. There was no specific policy developed to handle missing data, such data were excluded from further analyses.

**Table 1.** Demographical data – nationally representative samples (gender & generations) – online and personal researches

Online research			Personal research		
	capita	% (n=1038)		capita	% (n=2001)
Male	505	48.6%	Male	973	48.6%
Female	533	51.4%	Female	1,028	51.4%

Young generation	221	21.3%	Young generation	462	23.1%
Middle generation	577	55.6%	Middle generation	1,082	54.1%
Old generation	240	23.1%	Old generation	457	22.8%

Source: Created by authors; the sample distribution is equal to the distribution of the Hungarian population along with the particular criteria. The online research has a representative sample of that part of the Hungarian population who use the internet consistently.

3. Three focus group discussions were organised, each with 8 persons: 3 young, 3 middle aged and 2 old ones (n=24), based on a pre-prepared scenario (lasting 1.5-2 hours), led by trained moderators. An additional criterion was also considered in the selection of participants: they are open to their surroundings. The data collection was conducted in April and May 2018. The focus groups aimed to survey the differences between the generations' opinion about generations' preconceptions and stereotypes. The responses are shown in word-clouds below.
4. In addition to recognising the youth's opinion, master students of the University of Pécs Faculty of Business and Economics were personally interviewed in the study as the closure of the research, which took place in October 2018 with 20 participants. Of course, this is not representative of the Hungarian youth, but the responses can help to a deeper understanding of what younger people think about their own ageing and it can be a base for later researches.

To investigate age-related (generational) differences, respondents were classified into individual groups. To separate respondents into distinct groups, two choices were available: classic cohorts (Smith & Clurman, 1997; Törőcsik, 2011) and media-driven generational classification (Törőcsik, Kehl & Szűcs, 2014). For the purposes of this paper, the classic cohort classification was chosen, namely, 30 years and below were grouped as 'young', those between 30-59 years of age as 'middle generation' and those aged 60 years and above were categorised as 'elderly'.

### 2.3. Feelings about “young”, “elderly” and “old”

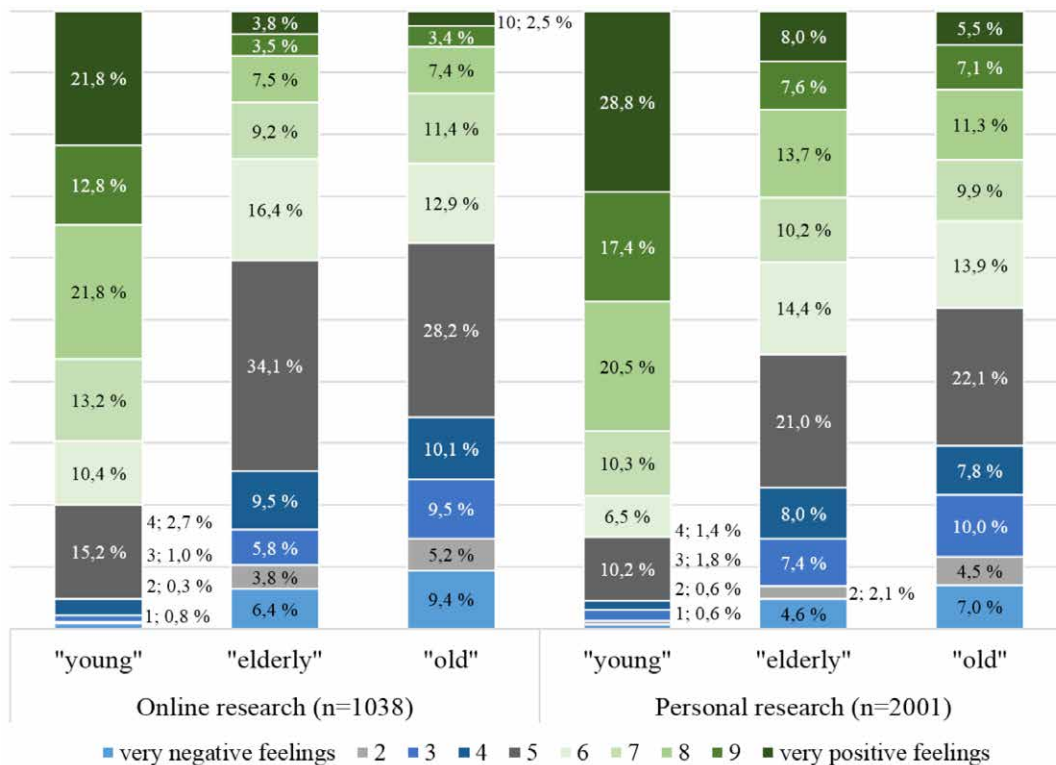
Respondents were asked to evaluate their feelings when they hear the young, elderly and old markers. On a 10-grade scale (better sensor for the differences), 1 reported that the respondent had a very negative feeling for the given marker, and 10 showed a very positive feeling. Figure 1 summarises the responses from online and personal interviews. 80% of online respondents considered the young marker positively, 40.5% of them had positive feelings about the elderly and only 37.6% about the old ones (6-10 values). In contrast, the 3 markers (83.6%; 53.9%; 47.6%) rated more positively all three categories in the personal interviews, which differences are particularly significant for 'elderly' and 'old' markers. This difference may be due to the sample deviation or the way in which the interview was conducted. A high rate of at least 8 was given to the 'young' marker, which is the most sympathetic for them. In the case of 'elderly' and 'old' markers, rather medium evaluations were made – in these cases, the modus was already 5. Concerning the young marker, based on the online questioning, compared to the average (7.54 on the 10-grade scale), women, and people with secondary education had more positive attitudes, as did those who live from their income and have ability to save a little from their salary. These findings are complemented by a personal interview, where young people and middle-aged people, as well as those who can live on and save money, think more positively than the average (7.98). In terms of place of residence, only the inhabitants of the category 'other towns' (i.e. not a capital city or a city with county rights) had a slightly modest opinion compared to the residents of other types of settlements.

Middle-aged people, inhabitants of the capital city or towns with county rank, and individuals with secondary education or lower qualification have more negative feelings than the average (online: 5.33) about the 'old' indicative. Compared to the average value of the personal interview (6.02), middle-aged people were more positive, while the younger generation, individuals in good financial circumstances, and also people living in bad financial difficulties had negative opinions. There is a difference in the results of the online and personal interviews based on the place of residence: inhabitants of the county seat and the villagers considered this indicator to be more positive than the average.

The 'old' indicator was considered to be more positive for men and for those with a good financial situation, who can save money, compared to the average (online: 5.02). On the basis of the results of the personal interview (avg. 5.54), those who live in county seats or villages and have enough income, but are not able to save money, also have a positive opinion about it. The most positive are the villagers. 'Elderly' indicator receives less negative answers (59.5%) than 'old' indicator (62.5%) and old generations are more positive about it than the younger ones, however, the respondents thought in

the negative (1-5) range about both indicators, but mostly giving them medium ratings. The personal interview shows a slightly more positive picture about it, compared to the online results, but it does not differ in its basic idea inasmuch as the 'old' indicator has a more negative meaning than the 'elderly' has.

Figure 1. Feelings about young, elderly and old terms – online & personal research



Source: Created by authors

The study looked for relationships between 'young', 'elderly' and 'old' indicators and the subjectively assessed life ratings through a cross-variable independence test (group effect analysis). For the latter, 12 questions were used from the basic questionnaire on health status, lifestyle, spending patterns and intergenerational relationships. Table 2 illustrates the strength and direction of relationships between selected issues and subjective feelings for markers. Pearson's  $\chi^2$  probe was used to investigate the group effect, with a strong condition of asymptotic significance below the 0.050 thresholds. Only in one case it was not fulfilled: between the perceptions of the 'elderly' marker and the subjective judgment of the health, so there was no significant statistical correlation between the two variables. The strength of the group effect was determined by the value of Cramer V coefficient. Among the indicators that can be used in the case of ordinal variables and non-symmetric tables, Kendall  $\tau_c$  and Goodman-Kruskal  $\gamma$  were chosen to examine the strength of the relationship. The relationship is overestimated by  $\gamma$  occasionally, so the following procedure was used: if  $|\gamma| - |\tau_c| > 0.05$ , then the value of  $\tau_c$  was taken into account if  $|\gamma| - |\tau_c| \leq 0.05$  then  $\gamma$ .

Regarding to questions "How healthy do you feel?" and "How do you feel if you hear "young"?" a moderately strong, positive correlation was found between the results of a cross-variable independence study ( $\phi_c = 0.202$ ; if  $0.20 < \phi_c \leq 0.25$  then the relationship is moderately strong), so the healthier the respondent felt, the more positive his/her feelings were with the 'young' marker. In terms of the 'old' indicator, there is also a positive relationship, although its strength is very weak.

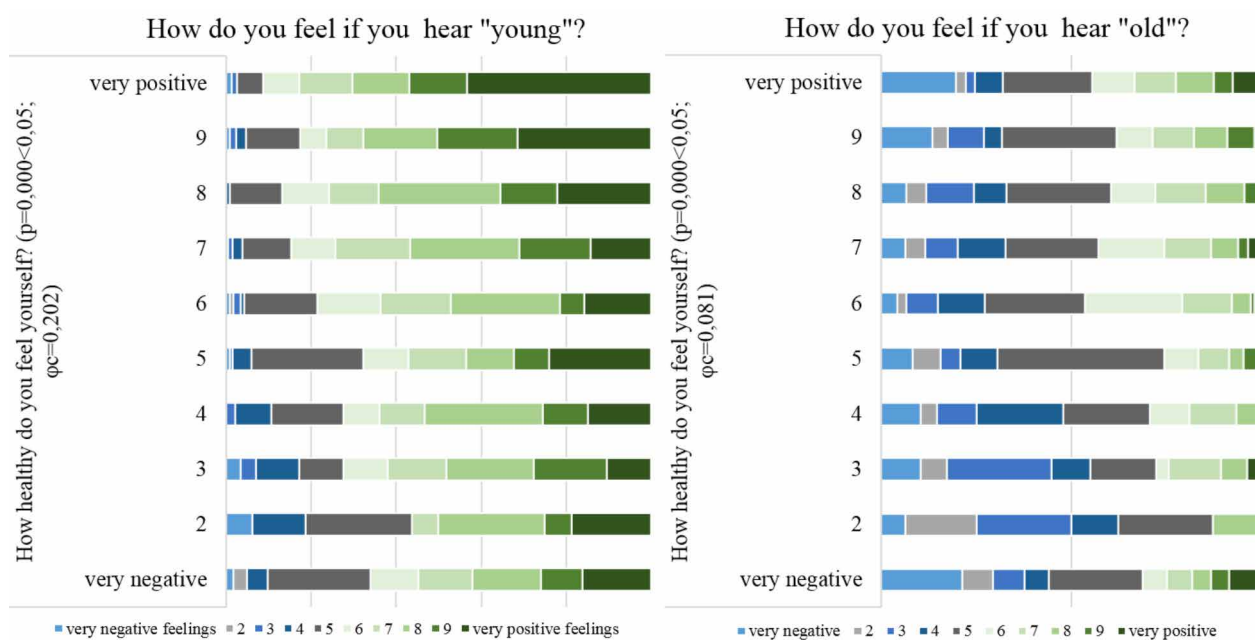
Figure 2 illustrates in more detail the change in the relationship. It can be seen that a worse health condition has a connection not only with the perception of the 'old' indicator but also the feelings associated with the 'young'. There is a very weak negative relationship with the 'elderly' and 'old' markers concerning the change of spending habits, so the more the individual's spending habits have changed in recent years, the more negative s/he judges the two indicators. This may be due to the increasing demand for health and anti-ageing products. The more positive attitude towards a more active lifestyle and quality of life also helps to judge age indicators in a positive way, which is true for intergenerational relationships. Respondents who were more likely to agree with "those who are older than me are annoying me" were particularly sensitive to the 'elderly' marker in a negative way. There is likely a greater sympathy towards 'old people' than towards 'elderly', who were considered a few years younger (Hegedüs et al., 2018).

**Table 2.** Crosstabs independence test (group effect analysis) between age-senses and subjective thoughts about life

How do you feel...?	“Young”	“Elderly”	“Old”
How healthy do you feel?	p=0.000; moderately strong, positive correlation	no	p=0.000; weak, positive correlation
...have your purchasing and spending habits changed in the recent years?	p=0.015; weak, positive correlation	p=0,002; weak, negative correlation	p=0.000; weak, negative correlation
...all the good and the bad things together, how do you determine your quality of life (on the whole)?	p=0.000; weak, positive correlation	p=0.000; weak, positive correlation	p=0.000; weak, positive correlation
...how active is your lifestyle?	p=0.000; moderately strong, positive correlation	p=0.000; weak, positive correlation	p=0.000; weak, positive correlation
...how typical is the cooperation, or the tension of the different generations?	p=0.000; weak, positive correlation	p=0.000; weak, positive correlation	p=0.000; weak, positive correlation
The generations understand each other.	p=0.000; weak, positive correlation	p=0.000; weak, positive correlation	p=0.000; moderately strong, positive correlation
This society does not like young people.	p=0.000; weak, negative correlation	p=0.000; weak, negative correlation	p=0.000; weak, negative correlation
This society does not like old people.	p=0.000; weak, negative correlation	p=0.000; weak, negative correlation	p=0.000; weak, negative correlation
The generations really help each other within the family.	p=0.000; weak, positive correlation	p=0.000; weak, positive correlation	p=0.000; weak, positive correlation
The generations fight with each other in the workplace.	p=0.000; weak, negative correlation	p=0.000; weak, negative correlation	p=0.000; weak, negative correlation
Those persons who are younger than me are annoying me.	p=0.000; weak, negative correlation	p=0.000; weak, negative correlation	p=0.000; weak, negative correlation
Those persons who are older than me are annoying me.	p=0.000; weak, negative correlation	p=0.000; moderately strong, negative correlation	p=0.000; weak, negative correlation

Source: Created by authors (results of online (n=1038) research)

**Figure 2.** Link between subjective health and „young/old” sense



Source: Created by authors (results of online (n=1038) research)

### 2.4. Associations about “young”, “middle-aged”, “elderly” and “old”

The results of focus group discussions are illustrated below with the help of word clouds. Using focus group discussions, the study collects more in-depth information about age indicators. The first three word clouds illustrate the first associations of young, middle-aged and older generations (Figure 3-4). According to the respondents, today’s young people are mostly characterised by immaturity, and as they are still immature, it is essential for them to gain experience in many areas of life in order to plan and organise their future. One of the decisive features of the lifestyle of this age group is the party and the rebellion, which is clearly ranked high among the judgments that characterise them. According to respondents, age rating, adulthood can be a significant indicator of youth, although not in the same way for everyone. Given the age of the respondents, they are characterised by their subjective feelings and thoughts, and their stage of life: childhood, brother, carefree period, lost future, freedom, dynamism that are enviable. In our rapidly evolving technical world, it is inevitable that people typify age groups, especially young people who are receptive to everything (computer, mobile phone). In terms of responses to the middle-aged generation, the family, active age, parents were the most typical, but it is also apparent from the further remarks that this age is considered to be a more serious, more responsible and at the same time the most prosperous age, according to the respondents. Reaching their aims, they already have good existence, life experience, confidence, and the baton is in their hands, either because it has been taken over or passed on.

At the hearing of the ‘old age’, respondents thought almost unanimously about pensioner and retirement (Figure 4). Only then did they think of them as an example to follow. They are also characterised as having experience, wisdom, and foresight, they are parental, in grandparent role, and lovable. The old age is accompanied by pains, according to the responses. By choosing the old generation for the elderly and the old people, the meaning difference can be discovered (Figure 5). The ‘old’ word is typically described by the experience; the word mama; the thought and the “old man who feels it” were most likely to be remembered by the respondents. In contrast, old, experienced, and wisdom terms have emerged in relation to the ‘elderly’. The experiences of life have a prestigious position at ‘elderly’ and ‘old’ indicators in the thoughts of the respondents. The age, years are also present in both cases, but as long as the ‘old’ indicator is heard, the respondents’ opinions are ‘how much I feel I am’ and ‘it is good to be old’, this is no longer the case for the elderly. Based on individual and subjective experiences, the meaning of words is linked to a specific person in both figures: my dad, old aunty on the market, married couple – colleagues, neighbours, anglers, grandparents. By recalling both ages, the retired ‘status’ typically appears, and the feeling that this period carries peace and reconciliation.

Figure 3. First associations about the young (left) and middle-age (right) generations



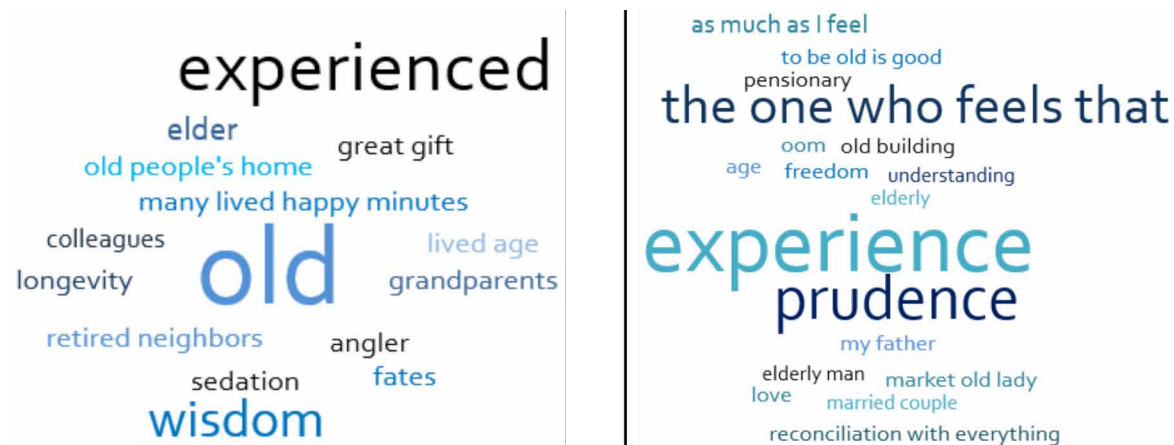
Source: Created by authors; focus group discussions (n=24)

Figure 4. First associations about the old generation



Source: Created by authors; focus group discussions (n=24)

Figure 5. First associations about the elderly (left) and old (right) senses



Source: Created by authors; focus group discussions (n=24)

The next word cloud (Figure 6) reflects the opinion of the young master students in connection with ageing. For young people, according to their opinion, ageing can be described with countless things: a process that is natural and the most characteristic of it is that it is filled with a feeling of misery and fear that includes passing. Although ageing is not linked to age, it is the inherent part of life, body ageing, changing is natural, and it is present in the exterior in a clearly visible way (grey hair, stooping posture, difficult walk, wrinkled face). Dual emotions appear in the respondents' expressions: there is the beauty of the age, the possibility of new things, the enrichment of their lives, their fulfilment, but it is also the age of downfall; nice old age, time for themselves, falling workability, the appearance of illnesses, personality change. Some respondents believe that the age makes you richer, its meaning is a meaningful life, while others say that it is a period of fear, sadness, and a speed that is rushing toward death, which is hard to imagine at a young age. Few think, only, that it is a social problem. Thus, the presence of fear in the way of thinking of young people appears, which is also in line with the results of the Hungarian youth research. It has been mentioned that the fear of ageing is already part of our culture, it is also present as a trend, in which everybody wants to show a younger image – since youth is the most ideal age. By contrast, society considers those unnecessary who do not produce and consume, only stagnate. Fortunately, however, many young people are aware that this is an inevitable process that needs to be learned to embrace and lived just like youth. Positive effects should be seen, the experience, the knowledge, the experiences and memories gathered during life that made the man richer. It was also an interesting concept that while Hungarian “ageing” as a term carries a pejorative content, English “ageing” does not carry it necessarily. Those who are old are generally thought of like a weak, cranky, or perhaps having not so good memory/brain function. Therefore, many people may be afraid of ageing and of losing their physical beauty, despite the fact that ageing carries more experience and wisdom.

Figure 6. What do you think about ageing?



Source: Edited by the authors; master students interviews (n=20)

### 3. CONCLUSION

The present study analysed the subjective associations of the Hungarian population in the context of ageing concerning the age sections (young, middle-aged, elderly/old), providing a snapshot of the opinions that can be observed today. Due to the observed economic and cultural phenomena (e.g. fragmentation of families, ageing society), the communication impact of media, the fewer or the lack of family-living samples, fewer young people “live” the old age, they mostly “hear/see” from others. Based on these facts they create internal images about ageing. The passing of the “most ideal” age causes a mixed, mostly negative emotion that seems to become a part of our culture. However, what the people know about ageing is not necessarily the same as what s/he feel about ageing. Knowledge and attitudes are not synonymous, but practically everybody has a negative implicit attitude towards older people and ageing (Stuart-Hamilton – Mahoney, 2003). However, the implicit attitudes are not correlated with explicit attitudes to ageing, so there is a difference between what s/he thinks and his/her immediate attitude to older people (Nash, 2017).

According to the results of the research, less than 50% of the Hungarian population thinks positively about the ‘elderly’ indicator and the ‘old’ expression follows an even more negative way. Men and villagers thought about ageing more positively, however, the negative attitudes of young people were striking. Subjective feelings related to the person’s own life and intergenerational relationships also affect the thoughts of individuals on ‘young’, ‘elderly’ and ‘old’ markers. For example, the healthier, more active or satisfied an individual feels, the less s/he thinks negatively about ageing-related indicators. Based on the results, both hypotheses were accepted.

Ageing slows down life, de-emphasises obligations. It is a natural process in which the individual’s lifestyle changes. Certain things (work, compulsion) are reassessed, relationships, family play a greater role. Besides the negative features, many positive traits are reflected in people’s thinking, but society, education, and the media must take seriously young people’s fearful attitude towards ageing and should reinterpret it. For these reasons, the study wanted to get a deeper picture of the thinking of Hungarian respondents, so that later further researches and marketing materials can be prepared to improve and reverse the destructive trend since there are positive handholds too.

Research limitation is that there were only Hungarian records in the database. For this reason, it is required to examine the validity of our scale at an international level. Maybe it should be adapted to local specificities which could be a further direction of research.

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## PERCEPCIJA STARENJA U MAĐARSKOJ

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### SAŽETAK

Kao i u mnogim razvijenim zemljama, tako je tendencija starenja stanovništva tipična i za mađarsku dobnu strukturu, što zahtijeva veću pažnju društva u ekonomskom, socijalnom i zdravstvenom aspektu; štoviše, ovo uzrokuje promjene u suradnji generacija i njihovim navikama i normama. Između ostalog, ono je povezano i sa socijalnom mobilnošću i fragmentacijom obiteljskih odnosa, što može značiti odvajanje starije generacije od mlađe, i stoga djeca nemaju priliku upoznati živote starijih osoba ili upoznaju samo nekoliko obrazaca življenja, te su uskraćeni za mogućnosti suživota i suradnje. Na ovu situaciju utječu današnji trendovi (npr. anti-aging), socijalni utjecaji i očekivanja povezana s prirodnim procesom starenja uz razvijanje negativne slike starenja kod mnogih (posebno mladih) ljudi. Iz tih razloga, studijom se istražuju asocijacije na starenje i dob s obzirom na generacije, a kako bi se utvrdilo koliko su njihova gledišta ili osjećaji pozitivni ili negativni i kako utječu na njihov svakodnevni život. Rezultati su prikupljeni korištenjem četiri metode: primjenom osobnog i online ispitivanja, koji su provedeni na nacionalno reprezentativnim uzorcima, te provedbom tri fokus grupe i intervjuiranjem studenata. Rezultati pokazuju da mađarski ispitanici imaju negativna mišljenja o pojmovima koji se vežu uz starenje. Ovaj aspekt može negativno utjecati na stavove generacija koji se odnose na njihovu subjektivnu vrijednosnu prosudbu o sebi, njihovu dob i životnu situaciju.

**KLJUČNE RIJEČI:** starenje, Mađarska, generacije, asocijacije

# THE EFFECTS OF ECONOMIC AND FINANCIAL UPDATES IN EU AND THE STRUCTURAL MODIFIES IN THE LAST PERIOD

REVIEW PAPER/PREGLEDNI RAD

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## ABSTRACT

The phenomenon of financial updates in the EU has emerged as a result of significant requirements, especially for the new EU member states. In this study, we aimed to put forward both the structural framework and the objectives of these requirements and we aimed to evaluate the effects of this structural change process in the recent period. In these evaluations, it is seen that the post-2010 period was especially meaningful for us due to the global criterion of global compliance established by the first fifteen countries. Therefore, the difference in development between the new EU member states and the first advanced member states made it necessary to address the EU harmonization criteria more meaningful precisely. In this context, it can be said that this is this main framework that determines the global economic-financial compliance obligations within the framework of EU countries. Financial updates in this stage are in the scope of the structural of the common macroeconomics modify via applications setting to analyse all the other macroeconomics and financial values. In both the qualitative and quantitative stage, the existence of current financial structural modifications is inevitable for the EU. It appears that this fact has to be considered for the maintenance of a common monetary union in the future of EU requires this considered common procedures of economic and financial framework direct to the future of EU.

**KEY WORDS:** European Union (EU), financial integration, financial modification, financial updates

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## 1. INTRODUCTION

It is seen that the recent changes of the EU harmonization policies are on the agenda with structural change policies regarding some important updates. The volatile macroeconomic structures of the EU countries have made inevitable changes in the common monetary policies directed to the institutional alignment in recent years. These changes and updates are undoubtedly meaningful with policies in which the macroeconomic policies based primarily on monetary base overcome the problems of harmonization of the EU currency and the ground. On the other hand, it is important that we emphasize the current position of the policies that we address because of, in particular, the fact that global changes affecting the EU over the last decade have emerged in a position to cause significant changes. It should be mentioned that other policies shaped under the updated EU policies, such as Environmental Policies, Financial Policies and Wage-Price policies are also the basis of these policies. However, when it is watched to modifies the process, it is clear that the frequently changing nature of monetary and credit policies necessitates updates on macro variables in directed to the future of EU. For the EU, one of the most important implementation policies of economic and monetary policies is to maintain the coherence of monetary and price policies in the scope of related to the common wage policies. In a joint study by Agnello & Cimadomo (2012) on this issue, the place of voluntary fiscal policies within the EU is discussed,

and we see that the objectives regarding the updated actuality of the fiscal policies should be emphasized. In addition to this, in the study prepared by the European Central Bank (2018) and interprets the current position of economic and financial policies taking into consideration the developments in the last decade has been tried to be determined the possible future change policies via the possible macro effects. And also, the study of the European Commission (2019), which aims to set the objectives related to the timeliness of the policies under the EU and especially within the Euro Area, is very important and meaningful.

In this study, the structural differences between the prominent countries in Euro use and those in the second plan in the use of common currencies are emphasized. In the elimination of these structural differences, it is seen that economic and financial policies have been updated and that different levels of influence are referred to. It is observed that the structural changes in the context of the economic activities within the EU have entered into a more meaningful process as a result of the increase in the loan portfolios in recent years. In particular, raising credit limits to support the private sector required a change in economic and financial updates in line with increasing economic activities within the Union. As an example, in 2017, when the average growth rate of EU countries is quite high, it can be said that the monetary base as Euro also shows a remarkable growth. On the other hand, the fluctuating structure of EU bond exports, which is frequently changing, is far from creating a higher presentation potential especially in the Euro Area countries except for Germany and the UK. In terms of financial changes, the EU average is below the average of these two countries as government bonds of the last 10 years. The main reason for the revision here is that it has recently emerged in a process in which non-financial institutions are involved in terms of related bond revenues. The fact that interest rates on non-financial institutions' bond offerings changed slightly also have provided an important reason for updating financial changes within the EU. In all this framework, if we consider this process with the based effective factors it would not be wrong to say that the important effects of economic and financial updates for the EU are to prevent possible negative developments especially in inflation and employment levels.

## **2. THE OBLIGATIONS IN UPDATING FINANCIAL POLICIES AND POSSIBLE STRUCTURAL CHANGES**

In this context, the necessities imposed by the price and cost changes in the money markets and the increases in credit volumes bring a process of externalities in which financial activities directly affect economic activities (Unerman et al, 2018: 510-511). In this respect, a synchronization of growth in the Euro Area necessitated both crisis economies and updates in line with the recommendations of the European Central Bank in an economic change cycle. In addition, the financial support and advantages from global market conditions provide a positive impact process, the existence of a financial contraction for emerging market economies have made the updated of financial policies inevitable along with macroeconomic policies (Hamdi, 2013: 142). These current policies are holistic rather than unilateral policies in terms of content that index the institutional structure and common institutional objects of global trade and financial policies.

### **2.1. The Update and Control Obligations Regarding Financial-Economic Developments**

The concept of financial markets undoubtedly emphasizes the operational positions and limits of the European Central Bank-based bonds and bills markets in the Eurozone. The necessity of structural changes is significant as an expression of periodic changes arising from the objectives of monetary policies. Determining the standards of updates on financial developments, especially regarding contractionary monetary policies, is one of these obligations. In addition, it can be said that this fact regarding structural updates is based on reducing the possible risk factors between the lenders and the borrowers and reducing the risk scales in corporate stock transactions (Tracy & Wright, 2012: 1). On the other hand, the current necessities of the effects of global banking transactions on capital markets cover, as priority in the process, the concerned prudential measures to eliminate losses during the crisis period. In this context, a process in which the standards of the European Central Bank regarding lending transactions have been changed is also a process in which structural change obligations are defined. These obligations related to these structural updates focus on European Central Bank can be categorized as follows:

- The current change requirements related to structural changes in institutional functioning of financial system and increases in financial transactions capacity (Mironov & Konovalova, 2019: 16).
- The updates obligations arising from the change in the institutional model in the banking sector for financial changes directly related to economic developments (Mironov & Konovalova, 2019: 22).
- The current alteration obligations arising from global trends in banking and corporate financial structural (Bank for International Settlements, 2018-a: 10).

It is a fact that structural updates emerged as a necessity especially during the economic and financial crisis. Structural changes for the EU aim at overcoming a crisis economy process via the stabilization policies in the prudential economic-financial policies during crisis periods. In other words, it aims to increase the target effect scale of the financial system in the question for the EU, as well as necessitating the updating of economic and current policies. Supporting the real economy by financial institutions especially banks, means updating the loan portfolio due to capital market changes.

It should emphasize importantly that banks, as financial institutions, have been most affected by crises process. It can be considered that the priority effect of the European Central Bank within the EU aims to set a goal of change on this basis for updating (European Central Bank, 2011: 76). Nevertheless, it should be emphasized that the first absolute necessity of economic and financial updates for the EU comes to the agenda with the recent crisis economy approaches. It is possible to list these elements regarding the update obligations for the crisis economy, which are dealt with within the framework of the European Central Bank, as follows:

- A stronger corporate banking understanding after the crisis emerged as a current necessity of economic-financial changes after the crisis. Increasing the levels of contribution to the real economy constitutes an important objective in overcoming the crisis economy. The support of economic and financial developments by banks has been outside from establishing a desired capital market target for the EU. In this context, even if the pre-crisis has been positively affected the countries in the Eurozone, it is difficult to emphasize about a process of financial support that supports the supply economy in the next stages (European Commission, 2006: 15).
- The market sensitivity in connected with the EU financial processing and the process of possible institutional financial crises have required that the recent updates are mostly aimed at reducing the transaction costs of these institutions. Even though the expanding portfolio of financial investors has increased the increasing global financial market profits, stockholders have been far from the desired profit margins for recent years. It is seen in this framework that these fundamental approaches are the necessity of financial updates for the EU and especially in the Eurozone on the basis of the European Central Bank. Therefore, the recently financial and economic updates have highlighted an approach that takes institutional-based and structural adjustment costs into consideration (Claeys et al., 2018: 14).
- The expected contribution levels of the credit portfolio to the real economy, which necessitates the updating of the system as a result of the effects arising from the financial system have revealed a significant obligation of economic-financial updates. The EU needs a new systemic perspective in order to achieve financial consolidation in order to increase corporate gains and to make it more flexible. This is a different and open systemic study area in terms of financial and economic updates. This systemic structure, which constitutes a more meaningful control ground of the financial risk area, is also an expression of a risk management process in which the financial participants in the Eurozone region are increasing. In this regard, the update obligations, especially in the Eurozone region, have long necessitated the existence of an international audit group. These updates have been also concerned in terms of establishing institutional buffers against possible new crises (Claeys et al., 2018: 20). Undoubtedly, the most important reason for this structural situation is the cyclical speed of financial factors in the EU and a higher capitulation level, especially in the Eurozone region. Of course, this reveals more flexible and also high financial profit targets for the EU on the basis of updates (European Central Bank, 2019: 22).
- Another updates obligation is that better use and sharing of data are critical to enhance surveillance of systemic risk. This is because the dynamics in relation to the updates put forth a non-static position via the infrastructure of the financial systemic structure. In other words, the possible financial crises will be able to differ from the previous crises for the Eurozone region. In this respect, systemic crises, which are aimed to be overcome by the economic-financial updates, also provide the framework of the system updates which can be handled by the new data base after a good surveillance process. On the other hand, these efforts require more up-to-date data sets that depend on the current institutional support of the international financial sector and broaden the scope of obligations for further economic-financial analysis. This is because that the effectiveness of economic-financial updates could also be shaped by non-institutional market correlations that can also be addressed outside the EU (Arpaia & Mourre, 2009: 3-4).

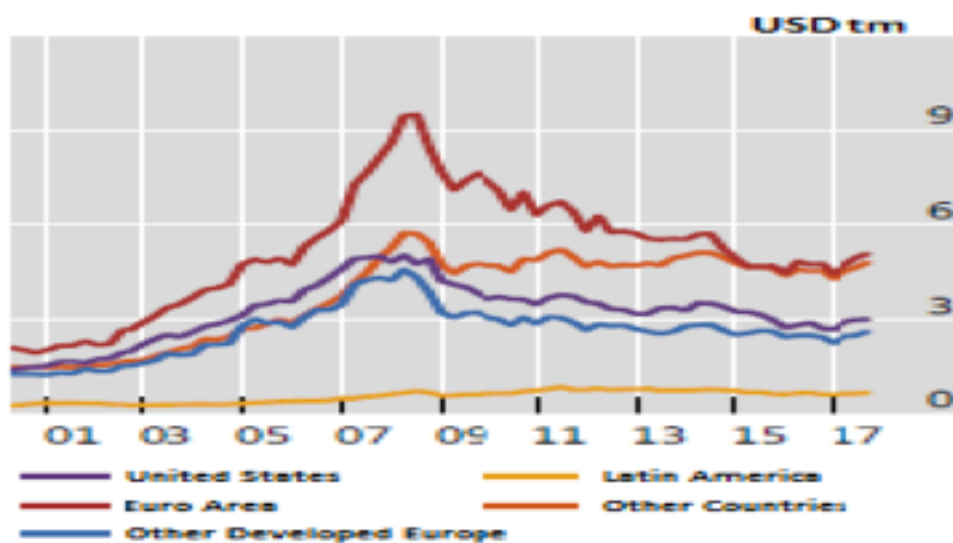
In addition, it shouldn't forget that the effects of economic and financial updates are directly related to current technological developments. The expanding technological infrastructure has expanded the current obligation area in practicing of corporate financial transactions in particular. The increase in the global transactions portfolio and the scale of the effectiveness of the internet transactions directly affected the process of monetary changes at the EU level of economic-financial transactions and effect on the new-updated modifications inevitable in Eurozone region especially under the terms of quantity and quality of financial capital.

## 2.2. The Obligations for Cost Effectiveness on the Basis of Monetary and Credit Policies

Controlling and improving the current effectiveness of economic with financial developments for the EU and especially for the Eurozone has brought cost control obligations on transactions based on monetary and credit policies. These cost factors, which constitute a significant negative trend regarding the effectiveness of credit and monetary policies, are the result of the increasing presence of corporate financial practices on a global scale and the increase of international prudential regulations to reduce liquidity risks. This is because the systemic structural importance of institutions such as globally traded banks for the countries in the Eurozone region has expanded the ground for new benchmark measures for increasing economic-financial transactions. Namely, each increase in the basis of new economic-financial criteria has meant a globalization process that can be expressed with increasing scale costs.

On the other hand, EU member states have perceived or imposed their national development and introduction of economic-financial rules into common EU policies as an important economic-financial stability tool to overcome systemic risks within the EU. The required and aimed point of this reason for the EU member states is that the findings of the financial tension tests within the EU can be solved only with the approach of EU countries and the countries in the Eurozone region in order to overcome the current problems. Because, almost 30 banks which were involved in the global financial decision process, have represented only one third of global corporate banking for long time. This phenomenon, which is an important cost factor for economic-financial activities for the EU, is considered as an important cost factor especially in the Eurozone region. In Figure 1 below, as a cost factor which directly affects the economic-financial efficiency within the EU, it is possible to monitor the post-2001 situation of the institutional external financial demands of the European Banks in the Eurozone (Braun & Deeg, 2019: 3).

**Figure 1.** European Bank's Foreign Financing Demand and Receivables (2001-2017)



Source: Bank for International Settlements (2018-b), *Structural Changes in Banking After the Crisis*, Committee on the Global Financial System (CGFS), Papers No 60, Report prepared by a The Group was chaired by Claudia Buch (Deutsche Bundesbank) and B. Gerard Dages (Federal Reserve Bank of New York), New York: The Working Group established by the Committee on The Global Financial System, January 2018, p. 26

As can be seen in Figure 1, the financial cash deficit of the financial institutions in the Eurozone region increased about three times compared to previous years during the 2009 crisis. This is considerably higher than in countries outside the Eurozone. It is possible to interpret this situation in two ways in order to understand the current position of economic and financial efficiency. First, the Euro has entered a period of significant value depreciation as the currency in use and has increased the cost value of these investments within the EU in 2009. These costs for capital increase are considered as an important justification for financial external demand from outside of the EU. The second is that the decrease in profit margins in capital investments, as a cost factor, decreases savings on the basis of Euro in equivalence to the decrease in financial efficiency in the process.

This two-way cost phenomenon, which is an important reason for the EU updates, have caused to increase the common capital positions of financial institutions, especially banks, as a result of the updates regarding the reduction of transaction costs (EBA, 2018-a: 9). Furthermore, it should be emphasized that these costs have started to increase again as financial

costs after especially the second quarter of 2018 in the scope of the targeted economic and financial updates. In this context, considering the current effects that depend on the cost effectiveness liabilities on the basis of monetary and credit policies, it is macro significant the effectiveness of structural cost variability can be addressed especially in term of the basis of real GDP changes in connected with “the Financial-Economic Sensitivity Indicators (ESI)” and “Product Demand Index” in the Euro Zone. Because, these three elements that we have emphasized reveal the basis of net change in the structural effectiveness of economic-financial updates and are concreted expression of the position of macro-variability in these costs. In Figure 2 below, it is possible to monitor these macro-periodic variations as a result of the transaction costs in the euro area:

**Figure 2.** The Updates Variability Process of real GDP connected with the Economic Sentiment Indicator and Product Demand Index in the Eurozone



Source: European Central Bank (2018), *Economic Bulletin*, Issue 5, Frankfurt am Main: European Central Bank, 2018, p.10

As we have mentioned before, the three factors that can be affected by the possible costs of bringing the financial-economic efficiency up to date within the EU are real GDP, Consumer Demand for Produced Goods and Economic Sensitivity Index. As can be seen in Figure 2, these three phenomena show a downward trend in 2012-13, but as a result of the revisions in the following years, they showed a linearly increasing trend as harmonious with GDP. Undoubtedly, this upward trend is mainly due to the up-to-date content of the risk management mechanisms, as well as the updating of the loan and liquidity reserve values. At this point, the decrease in the costs of financial-economic activities after 2013 can be interpreted as an important reason for the increase in the efficiency values that depend on the structural-institutional updates (EBA, 2018-b, 2018: 3).

Even though this situation created a deviation in the economic sensitivity index as a result of the widening credit volume in 2018, it did not create a meaningful deviation in the effectiveness of the updated economic-financial structure. It should also be emphasized to decrease in unemployment rates after 2013 are considered as the cause of a significant cost reduction as a result of structural updates on economic-financial activities. Of course, on the other hand, this fact is the expression of a process in which private consumption increases - and of course their investments - are supported as a result of increases in consumer revenues. Indeed, between 2013 and 2018, unemployment rates decreased by around 6 percent, and the percentages of economic and financial activity increased approximately by 12 percent. These tangible increases in efficiency, driven by economic and financial updates, can also be explained by the short-term high increases in the first quarter of 2018.

However, the current weight of the modifications of the European Central Bank to support domestic demand under the scope of monetary policy measures should not be ignored as an effect of monetary liquidity up-to-date. In this process, again if it should be emphasized, the approaches to regulating the monetary liquidity variability in the Eurozone region also necessitated important monetary policy updates in order to reach the current position of the investment targets. Undoubtedly, these updates are those measured by the outcome effects of financial support policies related to real GDP growth rates. These structural economic and financial alterations being to take placed in Figure 2 have verified the phenomenon that put forward by our side.

### 3. RISK MANAGEMENT UPDATES IN DIRECTED TO LEVELS OF ECONOMIC AND FINANCIAL ACTIVITIES IN THE EU

The objective effectiveness of updates on economic and financial activities is undoubtedly directly related to risk management in the process of economic-financial activities. For the EU, the risk management framework that may arise from the position of the economic-financial updates in this process can be, in brief, expressed as (OECD, 2018: 2-3).

- The increasing activity of the economic activities in the Euro Area,
- The control of potential financial fragilities in the process and the continuation of the process,
- The structural analysis of the borrowing and payment procedures of the credit and Clarification of this phenomenon,
- It is necessary to bring the economic-financial policy into the process via updated location and stabilize the ongoing financial positions,
- The need for a better risk sharing for a stable and sustainable monetary union, and this situation makes economic-financial risk management inevitable towards to the structural updates for Eurozone,

However, the structure of increasing growth scales in the Eurozone, which is shaped by different variable purposes, have necessitated a clearer expression of the possible risk factors related to this position. In the Eurozone region, it is possible to say that the risk and risk management processes are frequently revealed due to the trade elements and capital flows related to investments that cannot be reached to a certain standard. The issue that needs to be emphasized here is the fact that the risks arising from the updates related to the risk management process together with the structural politic risks arising from the economic-financial updates may compose a common potential market failure.

The existence of a stable decision-making process to prevent potential financial vulnerabilities especially in the risk management process, is considered as an important justification for the use of common money in the Eurozone region (Baldwin et al., 2008: 21-22). Indeed, the existence of a sustainable common monetary union is considered within the dynamics of credit policies and payment transactions in the risk management process. At this point, it should be declared that the existence of a meaningful risk sharing on the basis of EU countries is related to the being level of the relationship with the existing risk dynamics and that the market balances can present current policies at the level of these balances (Baldwin et al., 2008: 24).

The possible risks to the financial-economic growth in the Eurozone region regarding the uncertainties in the process of economic-financial updates and the clarity of possible output values can be monitored in Table 1, below:

**Table 1.** Significant Risk Factors related to Economic-Financial Updates in the Euro Area

Structural Uncertainty	Possible Outcome
Increased Retention in Trade and Investments and Deviations in Regional Open Foreign Policy Wilcoxon	Unlike the countries outside the Eurozone, the many countries have unlimited trade and capital flowing in the Eurozone. This is due to increases in the level of trade protectionism in Eurozone and this phenomenon has a negative impact on the regional confidence in the Eurozone as EU investment and employment levels. As a result, This phenomenon has harmed the long-term growth levels and prospects for the EU are undermined related to more trade and investment objectives as risk components.
Debt Market Stresses within the EU and in the Particular Eurozone Countries	Continuation of negative access events in applications in Eurozone; for example, populist parties are predominantly located in the countries of the Eurozone and the importance of reassessing the risks of lack of Eurozone restructuring increases significantly; this negative phenomenon weakens the market possibility and compliance of Eurozone countries, and creates significant risk sources as a result of changes in revaluation standards.
Debt Market Stresses within the EU and in the Particular Eurozone Countries	The existence of ambitious and comprehensive agreements to overcome significant financial vulnerabilities in EU and structural reforms via line with the national levels of the countries covered by the Eurozone can significantly increase investors' self-confidence and accelerate growth.

Source: OECD (2018), *OECD Economic Surveys: Euro Area, Overview-June 2018*, OECD 2018, p. 18

Table 1 illustrates the structural potential effects of the risk dynamics that cause possible risk costs on the specific (certain or uncertain) positions. The position of the objectives and structural changes in the Euro Area in a process of uncertainty appears to act on two main grounds. The priority of these is to influence the self-esteem values (positive or negative) of the investments on the market dynamics. Therefore, it can be said that the primary structural change objective of economic-financial updates is to present the dynamics to ensure market stability. The second domain of probable risk dynamics is the national debt limits of economic-financial updates, as well as the relations of national trade dynamics with different countries other than Eurozone, and the impact of these relationships on potential risks with economic-financial updates. This phenomenon includes possible risk factors in terms of national growth targets and the legislative change elements of the existing countries in the euro area and those in other countries (Tetlow & Stojanovic, 2018: 24-25). Therefore, it is observed that factors such as inflation rates or different monetary policies applied tend to move away from Eurozone as inflation pressures increase. Undoubtedly, this approach is also the cause of the risks arising from significant economic-financial updates for these countries in their quest for normalization. For these countries, it is seen that the gradual transitions in the adaptation to the Eurozone region are brought to the agenda and the provision of soft transitions with low-risk policies plays an important role in the process (UNCTAD, 2018: 32).

At this point, the establishment of a bank union in the Eurozone region and stabilization of cross-border financial flows aimed at stabilizing the financial markets play an important role in increasing the financial resistance of the Euro Area. In terms of risk factors, the fact that payments such as insurance and unemployment compensation are included in the process of protecting the purchasing power of citizens and maintaining the function of financial stability in the process of economic-financial shocks is an important anti-risk factor. At this point, mitigating market risks within the framework of obligations arising from economic-financial updates appears to be an important element. In other words, financial disintegration in the Eurozone area plays an important role. It is necessary to draw attention to some important elements in reducing the risks arising from possible financial fragmentations in the obligations of updates. In short, these structural dynamic elements:

- In order to prevent non-performing loans within the context of Eurozone-related countries, for some countries, preventing credit growth, and investments to a limiting standard plays an important role in reducing market-related financial crises. This situation is very meaningful in terms of providing a significant collection ease in reducing the risks of financial crisis and will also contribute to the formation of secondary financial markets (European Central Bank, 2011: 61).
- On the other hand, the increase of banks and other financial asset institutions on a controlled level made the existence of absolute standardized institutions inevitable. This is because the reflection of the economic-financial updates to the banks and other financial institutions has increased the credit costs of the banks and financial institutions in the Eurozone region. Furthermore, it is seen that the most important factor of this situation arises from the differences in the financing costs of these institutions in economic and financial updates (Demetriades & Law, 2006: 247).
- Reducing the risks arising from economic and financial updates, in the scope of financial market risks sharing and but connected with economic growth objectives, requires a pre-financed development process and a process in which the potential risks that banks may reflect to the market are considered within the scope of the European Deposit Insurance Fund. At this point, the economic and financial updates covered by the European Deposit Insurance Program will increase the diversity of bank bonds to the markets through the mechanism that will constitute a financially neutral turning point as being related to economic-financial sustainability (UN Environment–World Bank Group, 2017: 38).
- Indeed, the substantial overcoming of the potential risk obligations of economic-financial updates is directly related to the question of confidence in the financial values of the EU, which is addressed in the context of the EU's financial future. The increase in the loyalty of banks in the Eurozone area to public government bonds to overcome a possible risk process further differentiates the risk potential that may arise from updates due to differences in national bankruptcy regimes and variations in bank loans. This situation also makes it difficult for investors to evaluate credit risk in the economic and financial updates process. The first step of these situations in overcoming the financial risks that may arise from the updates is the harmonization of the bankruptcy proceedings in private or public Euro Area, even to a minimum. The second step is to keep on the economic and financial updates frequently on the agenda through restructuring in European Standards (Reid et al., 2017: 17).

It is evident that the effects of economic-financial updates inevitably have to be handled with the current structure of the possible risks necessitating an update of the risk management processes and evaluating the possible liabilities in a current structure. It has appeared that the clear that this requirement arises from the necessity of the risk management

obligations to be compatible with the structural changes in the EU in the process of economic-financial updates for a while. In other words, each risk management process that emerges as a result of the updates has to provide a common policy basis between EU financial institutions and the comprehensive changes arising from debt management and credit policies. Therefore, it will be difficult to overcome the negative effects of EU trade policies and capital investments which are frequently raised in the context of regional open policies.

#### 4. CONCLUSION

The effects of the economic and financial updates in the EU have been the subject of frequent debate in recent years due to recent social and economic crises in the Eurozone region. The effects of these updates are generally observed on three different levels. The first is the possible structural costs of the financial institutions subject to the update in the Eurozone region. The second is the effects and obligations arising from the current effects of monetary and financial policies, which are subject to economic-financial costs. The third is the risk management process and its impacts on the risks posed by the negative effects or costs arising from economic and financial updates, especially in the Eurozone region. Eliminating the negative effects of economic-financial updates and ensuring the structural harmony of new current dynamics necessitates a comprehensive risk management process of the update processes.

However, it is observed that the market sensitivity of economic-financial updates is quite high in countries where the goods produced are also subject to high consumer and economic sensitivity index. It is possible to interpret this phenomenon related to the structural effects of updates in the scope of the two main points. The first is that these indices in the Eurozone region create different update effects in the markets due to the difference in economic development. The second is that the national structure of the national institutional structures resulting from the difference in the unemployment rate and some other macroeconomic values presents a different risk scale for a common use of money. In both cases, the inevitable difference between the economic and financial change processes, and the possible effects of the economic-financial updates process on the basis of a different scale of impact on a countries-by-country basis, seem to exclude risk management processes so as to ensure a common decision process. In this context, it is seen that the risk management process brings to require the harmonization of the possible liabilities of the dynamics that have reached the current updated position with the related process. In addition to this, it is understood that transaction costs and risk factors are included in the EU decision-making process due to construct the common current monetary policies supporting capital flow to the member countries of EU. However, in addition in the updates process it should be emphasized that the risks posed by monetary and fiscal policies also shape the dynamics of the public decision-making process that guides the update process. This situation, which arises from the risk distribution among the countries in the Eurozone, is also an expression of the objectives of the economic-financial updates in the decision-making process. All EU countries aiming to grow economically have to take on the obligations posed by the potential risk management process to their decision processes. Certainly, at this point, clarification of the effects of economic-financial updates necessitated a common monetary change and decision-making process especially for the countries in the Eurozone region. Because it is understood that the formation of a common monetary usage base makes risk management inevitable with low risk policies. In this context, it appears that the inclusion of EU economic growth standards in the common decision-making processes of the member countries in order to ensure a stable financial background is particularly inevitable reason for the risk management process to prevent financial vulnerabilities in the Eurozone.

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## UČINCI EKONOMSKIH I FINANCIJSKIH AŽURIRANJA U EU I STRUKTURNE PROMJENE U POSLJEDNJEM RAZDOBLJU

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### SAŽETAK

Fenomen financijskog ažuriranja u EU pojavio se kao rezultat značajnih zahtjeva, posebno za nove države članice EU. Cilj rada je iznijeti strukturni okvir i ciljeve ovih zahtjeva te procijeniti učinke ovog procesa strukturnih promjena u posljednjem razdoblju. U tim se procjenama vidi da je razdoblje nakon 2010. bilo posebno značajno zbog kriterija globalne usklađenosti uspostavljenog u prvih petnaest zemalja. Stoga je razlika u razvoju između novih članica Europske unije i prvih naprednih država članica učinila potrebnim preciznije rješavanje kriterija harmonizacije EU. U tom kontekstu, može se reći da je to glavni okvir koji određuje globalne obveze ekonomsko-financijskog usklađivanja u okviru zemalja EU. Financijska ažuriranja u ovoj fazi obuhvaćaju strukturu zajedničke makroekonomije koja se mijenja pomoću postavki aplikacija za analizu svih ostalih makroekonomskih i financijskih vrijednosti. I u kvalitativnoj i u kvantitativnoj fazi postojanje trenutnih financijskih strukturnih promjena neizbježno je za EU. Čini se da se ta činjenica mora uzeti u obzir da bi se održala zajednička monetarna unija u budućnosti EU-a, a koja zahtijeva zajedničke postupke ekonomskog i financijskog okvira.

**KLJUČNE RIJEČI:** Europska unija (EU), financijska integracija, financijske preinake, financijska ažuriranja

# THE IMPACT OF TERRORISM ON FDI INFLOWS: A META-ANALYSIS

PRETHODNO PRIOPĆENJE / PRELIMINARY COMMUNICATION

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**ABSTRACT**

The determinants of foreign direct investment (FDI) inflows have been a subject of several empirical and theoretical studies. However, previous researchers reached to vague or contrasting results as for the role of terrorism on attracting FDI inflows in developing countries. The purpose of the present study is to conduct a meta – analysis on published papers that focused on the empirical investigation of terrorism as a determinant factor of FDI inflows in developing countries. Papers are selected under specific criteria, while publication biases and models' specifications are discussed. The contribution of the essay is proven by the fact that it is the first paper to conduct a meta-analysis on the relation between FDI and terrorism, considering that there is an increasing research interest towards terrorism, mostly in the post-9/11 period. The study concludes that the impact of terrorism on FDI inflows in developing countries depends on the estimation techniques, the sample of countries and the research design of previous empirical papers. Limitations of the study and suggestions for future research are included.

**KEY WORDS:** foreign direct investment, terrorism, meta-analysis, empirical studies

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**1. INTRODUCTION**

Trade relationships developed during international flow transfer have a significant impact on the modern economic system. Multinational enterprises (MNEs) and foreign investors consider several factors when investing their capitals in developed and developing countries. In particular, Foreign Direct Investment (FDI) inflows in developing economies are determined by the political conditions of the recipient countries, among which the terrorist incidents. Therefore, developed and developing economies proceed to reforms in order to attract more FDI by MNEs and to improve the determinant factors, which have been investigated by several researchers.

The interaction between FDI inflows and terrorism attracts increasing research interest over the past years. Nevertheless, empirical studies reached to vague or contrasting findings. It is noted that these studies focused on different groups of countries, different case studies, used different estimation methods and examined different periods of time. Therefore, a meta-analysis review is conducted in order to combine and discuss findings of previous studies on FDI and terrorism in developing countries.

The paper is structured as following: the theoretical framework of the research is presented in section 2, in order to discuss definitions and to define the literature gap. Section 3 includes the methodological approach and the findings of the meta-analysis, while section 4 includes the discussion of the findings, the limitations and suggestions for future research. Additionally, tables and figures related to the meta-analysis are presented in order to justify and explain the included studies.

**2. THEORETICAL FRAMEWORK****2.1. Definitions and literature review**

The role of FDI inflows in developing economies has been a subject of several theoretical and empirical studies. When regarding to foreign capital, several definitions of FDI have been presented until present. According to the IMF (1993) FDI are defined as a form of investment performed in order to acquire long-term interest in a company operating in a different country from the investor. The foreign investors perform FDI so as to actively participate in the decision-making process of the company. Similarly, OECD (2008) defines FDI as the acquisition of a long-term interest of a foreign investor

to a company located in a different country than the investors. Finally, WTO (1996) defines FDI as the acquisition of capital or share by an investor based in a different country in order to control that capital.

The present study focuses on the impact of terrorist attacks on FDI inflows. Therefore, it is noted that terrorism refers to the intended use or threat of violence by an individual or a group in order to obtain social or political benefits (Sandler & Enders, 2008; Schmid, 2010). Terrorist attacks include bombings, suicide attacks, hijackings, abductions, murders, threats and other related offensive activities (Sandler & Enders, 2008). Schmid (2010) argued that terrorism can take several forms, such as crime, politics, wars, propaganda and religion.

According to the Global Terrorism Database (2017) a terrorist attack fulfils the following criteria:

1. The incident takes place for a specific purpose, which derives as a conscious choice of the perpetrator.
2. The incident involves some form of violence or immediate threat of violence, including violence against both people and property.
3. The perpetrators may be either resident in the country where the attack occurs or in a different country.

In particular, several studies reached to the conclusion that terrorism is a deterrent factor of FDI inflows in developing countries (e.g. Bisson, 2012; Bandyopadhyay et al., 2014; Kinyanjui, 2014; Opocu, 2015; Gammoudi & Cherif, 2016; Morrison et al., 2016; Asongu et al., 2018). Nevertheless, other studies reached to vague findings (e.g. Efobi et al., 2015; Quyang & Rajan, 2016; Zebua, 2016; Kurul & Yalta, 2017; Koko et al., 2017). Finally, some researchers concluded that there is no association between terrorism and FDI inflows (e.g. Younas, 2009; Luca & Spatafora, 2012; Ullah & Inaba, 2014; Erkekoglu & Kilicarslan, 2016). Therefore, it is concluded that previous researches that focused on the impact of terrorism on FDI inflows in developing countries reached to mixed or contrasting results.

## 2.2. Contribution to the existing literature

The literature review on relative empirical studies led to the conclusion that previous researchers have been unable to agree on whether terrorism averts FDI inflows in developing economies. The empirical evidence is led to contrasting results because of different samples, data sets and methodologies used in these studies. Despite the fact that meta-analyses have been widely used over the past years in economic studies (Stanley et al., 2013) there are limited meta-analyses on FDI inflows.

When regarding meta-analyses of FDI studies, Iršová & Havránek (2013) focused on the horizontal spillovers from the inflows, Gunby et al. (2017) focused on economic growth in China, Demena & van Bergeijk (2017) focused on spillovers effects, while Rezza (2015) on environmental regulations. Similarly, Ljungwall & Tingvall (2010) performed a meta-analysis on the effect of FDI on domestic firms and Mebratie & van Bergeijk (2013) also conducted a meta-analysis on productivity spillovers.

Nevertheless, none of the already conducted meta-analyses focused on terrorism, despite the fact that terrorist attacks have direct impact on the operation of multinational companies, causing fear, mortality, injuries etc (Shah & Faiz, 2015). It is noted that Bailey (2018) performed a meta-analysis on institutional factors and FDI, including terrorism, but the study examined both developed and developing economies. Kollias et al. (2011) argued that terrorism is related to economic instability and Blomberg et al. (2011) concluded that terrorism is a global phenomenon which does not seem to be reduced. Therefore, the contribution of the present research is proven by the fact that it is the first effort to conduct a meta-analysis on studies that focused on the association between FDI inflows and terrorist attacks.

## 3. METHODOLOGY AND EMPIRICAL FINDINGS

### 3.1. Methodological approach

A meta-analysis review is conducted in order to combine and discuss findings of previous studies on FDI and terrorism in developing countries. The steps of the meta-analysis were the following ones:

1. The purpose of the research has been defined.
2. The inclusion criteria were defined.
3. The selected studies are included using certain keywords and combinations of them.
4. Certain statistical programs have been used to analyze the findings of the selected studies.

Moreover, several search engines are used, including Google Scholar, ScienceDirect, Scopus, EBSCO and JSTOR. The purpose of the present research is to meta-analyze empirical studies that focused on the impact of terrorism on FDI inflows in case-studies of developing countries. Additionally, Excel and Stata have been used in order to conduct the meta-analysis of the studies. The general form of the regression is given by equation 1 and it is noted that  $z_j$  represents various control variables used in the original studies.

$$\text{Eq. 1.: } Y = \beta_0 + \beta_1 \text{Terrorism} + \sum_{j=2}^i \beta_j Z_j + \text{error}$$

### 3.2. Selection criteria

Certain criteria are used in order to minimize unobserved heterogeneity and to focus on the “true effect” of terrorism on FDI inflows in developing economies. These are the following ones:

1. Studies published in English and in international journals are included.
2. FDI inflows as dependent variable.
3. Analysis focused solely on developing economies.
4. Solely empirical studies used annual data.
5. Solely country – specific (case-studies) studies were included.
6. Solely articles to which the researcher had access to full text were chosen.
7. Keywords such as “FDI inflows”, “terrorism”, “developing countries”, “developing economies”, as well as Boolean operators were used.

It is noted that access is provided by the University of Thessaly (Greece).

### 3.3. Meta-analysis findings

The literature review on previous studies, using the above presented criteria, led to the below presented number of studies screened Table 1.

**Table 1.** Keywords and number of studies screened

Subject	Keywords	Number of studies screened	
Foreign capital	1. FDI inflows	Google Scholar	n=18.400
		ScienceDirect	n=4.215
		Scopus	n=1.379
		EBSCO	n=1.461
		JSTOR	n=57
	2. Foreign capital inflows	Google Scholar	n=18.400
		ScienceDirect	n=4.215
		Scopus	n=1.379
		EBSCO	n=1.461
		JSTOR	n=57
3. #1 OR #2	Google Scholar	n=16.900	
	ScienceDirect	n=2.867	
	Scopus	n=1.704	
	EBSCO	n=1.766	
	JSTOR	n=76	

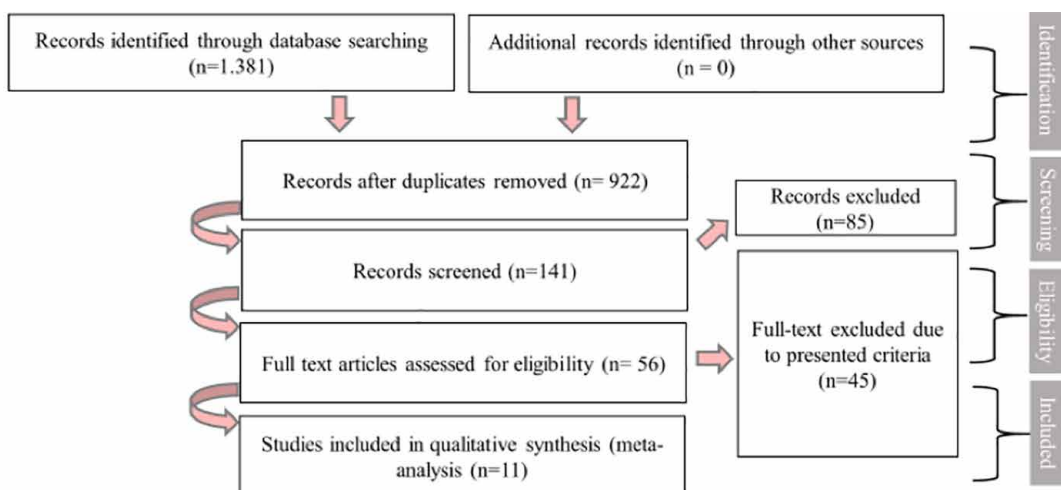
Terrorism	4. Terrorism	Google Scholar	n=522.000
		ScienceDirect	n=22.950
		Scopus	n=38.791
		EBSCO	n=147.496
		JSTOR	n=7.937
	5. Terrorist attacks	Google Scholar	n=79.900
		ScienceDirect	n=13.604
		Scopus	n=10.466
		EBSCO	n=93.426
		JSTOR	n=2.371
	6. Terrorist incidents	Google Scholar	n=12.000
		ScienceDirect	n=905
		Scopus	n=495
		EBSCO	n=623
		JSTOR	n=355
	7. Terrorist activity	Google Scholar	n=18.300
		ScienceDirect	n=2.412
		Scopus	n=1.381
		EBSCO	n=1.031
		JSTOR	n=388
8. #4 OR #5 OR #6 OR #7	Google Scholar	n=155.000	
	ScienceDirect	n=24.369	
	Scopus	n=44.859	
	EBSCO	n=161.877	
	JSTOR	n=8.448	
Sample	9. Developing countries	Google Scholar	n=3.610.000
		ScienceDirect	n=355.363
		Scopus	n=251.415
		EBSCO	n=278.433
		JSTOR	n=4.332
	10. Developing economies	Google Scholar	n=525.000
		ScienceDirect	n=24.914
		Scopus	n=7.058
		EBSCO	n=6.676
		JSTOR	n=368

11. #9 OR #10		Google Scholar	n=17.800
		ScienceDirect	n=364.487
		Scopus	n=256.645
		EBSCO	n=281.391
		JSTOR	n=4.483
Research design	12. Country specific	Google Scholar	n=682.000
		ScienceDirect	n=31.368
		Scopus	n=8.461
		EBSCO	n=11.329
		JSTOR	n=579
	13. Case study	Google Scholar	n=2.440.000
		ScienceDirect	n=539.687
		Scopus	n=763.263
		EBSCO	n=560.735
		JSTOR	n=10.394
14. #12 OR #13		Google Scholar	n=17.800
		ScienceDirect	n=565.985
		Scopus	n=771.324
		EBSCO	n=571.806
		JSTOR	n=10.870
15.#3 AND #8 AND #11 AND #14		Google Scholar	n=950
		ScienceDirect	n=397
		Scopus	n=2
		EBSCO	n=29
		JSTOR	n=3

Source: Created by authors

Similarly, the flow chart of the meta-analysis is developed as following (Figure 1).

**Figure 1.** Flow chart of the meta-analysis



Source: Created by authors

Nevertheless, certain studies have been excluded from the meta-analysis. The excluded studies and the reasons of exclusion are presented in Table 2.

**Table 2.** Excluded studies

Reason of exclusion	Author(s) and publication year
Use of quarterly data	Bano et al. (2019), Shahzad et al. (2016)
Use of monthly data	Anwar & Mughal (2016), Haider & Anwar (2014), Nazik et al. (2014), Omay et al. (2013), Ullah & Rahman (2014)
Panel data analysis	Gupta et al. (2004), Abadie & Gardeazabal (2008), Papaioannou (2009), Alomar & El Sakka (2011), Berrebi & Ostwald (2011), Powers & Choi (2012), Buchanan et al. (2012), Bandyopadhyay et al. (2014)
Developed economies	Gupta et al. (2004), Abadie & Gardeazabal (2008), Papaioannou (2009), Alomar & El Sakka (2011), Berrebi & Ostwald (2011), Powers & Choi (2012), Buchanan et al. (2012), Bandyopadhyay et al. (2014)
FDI inflows not as a dependent variable	Li & Schaub (2004), Enders et al. (2006), Daude & Stein (2007), Younas (2009), Berrebi & Ostwald (2011), Zeb et al. (2014), Hyder et al. (2015), Younas (2015), Mehmood & Mehmood (2016), Asongu & Amankwah – Amoah (2016), Anwar & Mughal (2016), Okafor & Piesse (2017)
Not published in scientific journals (master theses, dissertations etc)	Brevik (2014), Halllberg (2016), Vathsana (2016)

Source: Created by authors

Based on the above presented procedure, the meta-analysis includes 11 empirical studies, as presented in Table 3.

**Table 3.** Studies included in the meta-analysis

Author(s) and publication year	Country	Dependent variable	Type of FDI	Studied period
Alam et al. (2017)	Pakistan	FDI inflows	Net inflows of FDI	2000-2015
Ali et al. (2017)	Pakistan	FDI inflows	Total inflow of foreign direct investment	1980-2015
Kinyanjui (2014)	Kenya	FDI inflows	Net inflows of FDI	2010-2012
Najaf & Ashraf (2016)	Pakistan	FDI inflows	Total inflow of foreign direct investment	1981-2011
Rasheed & Tahir (2012)	Pakistan	FDI inflows	Total inflow of foreign direct investment	2003-2011
Rauf et al. (2016)	Pakistan	FDI inflows	Total inflow of foreign direct investment	1970-2013
Shahbaz et al. (2013)	Pakistan	FDI inflows	Net inflows of FDI	2000-2011
Talat & Zeshan (2014)	Pakistan	FDI inflows	Total inflow of foreign direct investment	1980-2010
Wami (2018)	Afghanistan	FDI inflows	Net inflows of FDI	2008-2017
Zakaria et al. (2019)	Pakistan	FDI inflows	Net inflow of FDI	1972-2014
Zulfiqar et al. (2014)	Pakistan	FDI inflows	Total inflow of foreign direct investment	2001-2013

Source: Created by authors

It is noted that the included studies focused on different case-studies, on different period spans and used different type of FDI as a dependent variable. The characteristics of the sample are presented in Table 4.

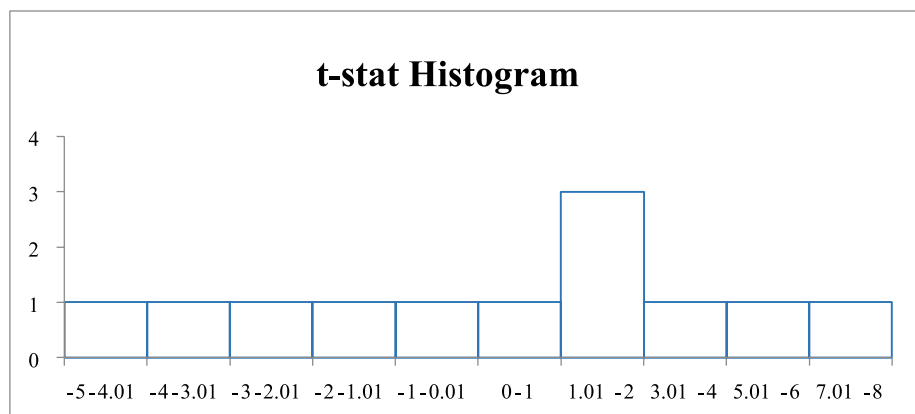
**Table 4.** Sample characteristics

Characteristics	Observations	Mean	Min	Max
T-stat	247	0,966	-4,467	7,833
Year of publication	247	2015,4	2012	2019
Mid-point of sample years	247	2002,09	1970	2017
Span of sample years	247	21,4	2	43
Multiple regression	12			
OLS	156			
GMM	43			
Linear regression	36			

Source: Created by authors

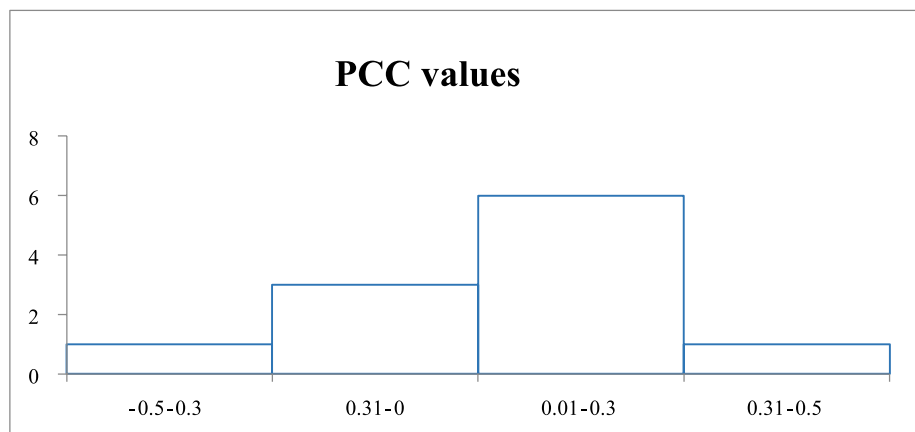
The histograms of the meta-analysis are presented in Figure 2 and in Figure 3. In particular, Figure 2 presents the t-statistics histogram, while Figure 3 depicts the histogram of the partial correlation coefficients (PCC).

**Figure 2.** T-stat histogram



Source: Created by authors

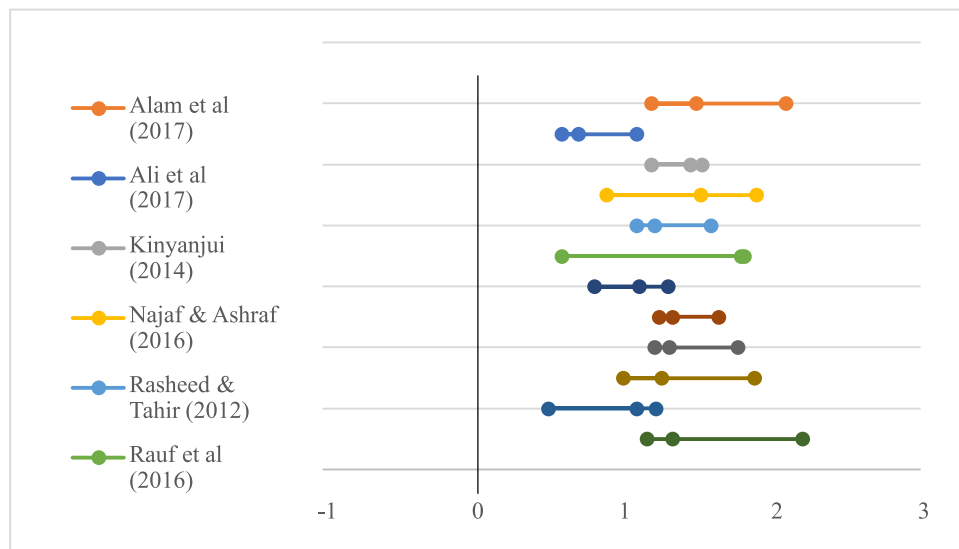
**Figure 3.** PCC values histogram



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It is observed that t-statistics of the original studies are characterized by wide range. Despite the outliers, it is observed that the weight of the distribution is mostly centered between t-values from 1,0 to 2. Similarly, it is observed that the distribution of PCC is well behaved and bounded between -1 and 1. Finally, Figure 4 presents the forest plot of the meta-analysis and it is observed there are differences on the effect size of the sample studies.

**Figure 4.** Forest plot



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#### 4. CONCLUSION

The present paper focused on the meta-analysis of empirical findings regarding the role of terrorist attacks on FDI inflows in case studies of developing countries. The sample studies have been recently published, meaning from 2012 until present. This is in accordance with the findings of Fatima et al. (2014), Altay & Celebioglu (2015) and Drakos & Kallandranis (2015), who argued that 9/11 turned interest towards terrorism.

The initial analysis of the sample studies highlights the negative and statistically significant impact of terrorism on FDI inflows in case studies of developing economies. It is observed that the sample studies covered data from 1970 to 2017 and that the majority of the researches focused on the case of terrorism and FDI inflows in Pakistan, while only one study focused on Afghanistan and one in Kenya.

Additionally, publication bias is an important aspect of meta-analysis, as well as on FDI studies (Havrnek & Irsova, 2012; Doucouliagos & Stanley, 2013), considering that the sample selection could influence the observed estimated influence. The dependent variable is presented in several forms (Total FDI inflows, Net FDI inflows and FDI to GDP). Because of this heterogeneity on the measure of FDI, the use of partial correlation coefficient is suggested.

Nevertheless, it should be noted that the study is subjected in certain limitations. In particular, it is noted that the selected researches were published in international scientific journals. Therefore, future studies could expand the sample including doctoral dissertations, books, master theses etc. The sample of the selected studies could also be considered a limitation of research. Thus, the meta-analysis could be extended through including panel-data studies as well, considering that the present research is limited to case studies. Future studies could also include researches that focused not only on developing countries, but on developed economies as well. Moreover, the research could be expanded through including additional estimations, such as funnel plots, funnel asymmetry tests, General – to – Specific modelling etc.

Policy implications arise for the role of terrorism in attracting FDI inflows in developing economies. Therefore, in order to encourage foreign investors, it is crucial that anti-terrorism measures are applied, while the institutional and political framework should be encouraged. The migration flows from Asian countries have not been considered as an explanatory variable by any of the sample studies, despite the increased fear of spreading terrorism via migration channels (Nikšić Radić et al., 2019). Therefore, current social issues should also be considered. Finally, it is important to mention that none of the sample studies focused on countries that present high rates of terrorism, including Iraq and Syria. Studying the cases of the specific countries could provide additional information on the FDI determinants.

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## UTJECAJ TERORIZMA NA IZRAVNA STRANA ULAGANJA: META-ANALIZA

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### SAŽETAK

Faktori koji utječu na priljev izravnih stranih ulaganja predmet su nekolicine empirijskih i teorijskih studija. Međutim, prethodna istraživanja su prikazala nejasne ili oprečne rezultate što se tiče uloge terorizma u privlačenju izravnih stranih ulaganja u zemljama u razvoju. Svrha ovog rada je provesti meta - analizu objavljenih radova koji su se fokusirali na istraživanje terorizma kao glavnog čimbenika priljeva izravnih stranih ulaganja u zemlje u razvoju. Analizirani radovi su odabrani prema točno određenim kriterijima. Doprinos ovog rada je potvrđen činjenicom da je to prvi rad koji je primjenio meta-analizu odnosa između stranih ulaganja i terorizma, s obzirom na to da postoji sve veći istraživački interes za terorizam, većinom u periodu nakon 9/11. Zaključak analize je da utjecaj terorizma na izravna strana ulaganja u zemljama u razvoju ovisi o tehnikama procjene, uzorku zemalja i metodologiji istraživanja analiziranih empirijskih radova. Navedena su i ograničenja studije te prijedlozi za buduća istraživanja.

**KLJUČNE RIJEČI:** izravna strana ulaganja, terorizam, meta-analiza, empirijske studije

# BULGARIAN NASCENT STUDENT TECHNOPRENEURS: MOTIVES, PERCEPTIONS OF BARRIERS AND STARTUP ACTIVITIES

PRELIMINARY COMMUNICATION/PRETHODNO PRIOPĆENJE

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## ABSTRACT

The research objective of the present study is to identify motives, startup activities and perceptions of barriers of Bulgarian nascent technopreneurs. This study utilizes a database about technology entrepreneurship collected using a cross-sectional survey among science and engineering students in 15 Bulgarian universities. Technology entrepreneurship is defined as the creation of a new technology-based business while technology-based business is described as a business whose products or services depend largely on the application of scientific or technological knowledge (Allen, 1992). The sample for this study is extracted from the database and is composed of science and engineering students, who are involved in nascent technology entrepreneurship. The research findings reveal the most important motives, most frequently performed startup activities and the perceived barriers to nascent student technopreneurship. There are differences in the motives, startup activities and perceptions of barriers between Bulgarian nascent student entrepreneurs and intrapreneurs. The study provides recommendations for future research.

**KEY WORDS:** nascent technopreneurs, motivation, startup activities, barriers

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## 1. INTRODUCTION

In the global economy, entrepreneurship and technology are considered as two important engines for economic growth and sustainability and their combination may create value for firms and may increase the wealth of nations and regions (McPhee & Bailetti, 2012; Bailetti, 2012). Technology entrepreneurship is an important and fascinating scientific field which is relatively unexplored and thus presents various new research opportunities (Shane & Venkataraman, 2003). Since the first symposium on technology entrepreneurship at Purdue University (USA) in 1970 (Bailetti, 2012), technology entrepreneurship is receiving increasing attention among academics, policy makers, entrepreneurs, managers, investors, etc. because of its positive influence on economic development (Mosey, 2016).

Technology entrepreneurship is a distinct research line at the nexus of Entrepreneurship and the Management of Technology and Innovation (Spiegel & Marxt, 2011; Hsu, 2008; Mosey et al., 2016). It was acknowledged that the field of technology entrepreneurship tends to be organized around a phenomenon rather than being oriented around any particular academic field (Hsu, 2008). In comparison with other scientific fields such as economics and management, the field of technology entrepreneurship is in its infancy (Beckman et al., 2012; Bailetti, 2012). During the past decades the academic research in the field of technology entrepreneurship has progressed rapidly in terms of volume, breadth and diversity (Ratinho et al., 2015; Bailetti, 2012). However, the number of scholars in this field is not large and the research on technology entrepreneurship has not contributed substantially to other scientific fields such as economics, entrepreneurship, and management (Bailetti, 2012). As a relatively underresearched topic, technology entrepreneurship is seen as a promising area for entrepreneurship research and practice (McPhee & Bailetti, 2012). Academic research in technology entrepreneurship has generated a complex and interdisciplinary literature which relies on diverse theoretical backgrounds and addresses a wide number of topics (Ratinho et al., 2015).

Several studies reviewing technology entrepreneurship research (Ratinho et al., 2015; Ferreira et al., 2015; Bailetti, 2012; Spiegel & Marxt, 2011; Mosey, 2016; Mosey et al., 2017) demonstrate that there is a lack of understanding about pre-venture processes in technology entrepreneurship. Therefore, the research objective of the present study is to identify motives, startup activities and perceptions of barriers of Bulgarian nascent technopreneurs.

## 2. TECHNOLOGY ENTREPRENEURSHIP

There is no consensus among scholars about the definition of the concept of technology entrepreneurship. Although the available definitions in the literature emphasize on different activities or stages of entrepreneurial process, ascribe different meanings, refer to different levels of analysis and mention explicitly diverse outcomes of technology entrepreneurship, they coincide that technology entrepreneurship is a combination of two different concepts: entrepreneurship and technology (Petti, 2009; Nacu & Avasilcăi, 2014). Several authors perceive technology entrepreneurship as the act of creation of a new technology-based business (Gans & Stern, 2003; Antoncic & Prodan, 2008; Colovic & Lamotte, 2015). Other authors view technology entrepreneurship as a process of development of innovative products and services (Nacu & Avasilcăi, 2014; Spiegel & Marxt, 2011; Pathak et al., 2013). For example, Nacu & Avasilcăi (2014) argue that technology entrepreneurship involves technological innovations and their evolution from idea to “prototype”. Spiegel & Marxt (2011:1626) define technology entrepreneurship as a process of “formation, exploitation and renewal of products, services and processes”. The stage of formation involves assembly of resources and systems and opportunity search and recognition. The stage of exploitation is related to pursuing of opportunities. The renewal stage refers to the renewal products, services and processes of technology-driven firms. Petti (2009:xiii) views technology entrepreneurship as a process incorporating four main sets of activities:

- the creation or identification of technologies: involves the recognition of relationships and connections that lead to discoveries (revealing something that was unknown) and inventions (the possible applications of discoveries into the real world);
- recognition of opportunities to match the potential applications of the technology created/identified with a market need or space and decide about intellectual property securing and protection to ensure the potential of value creation;
- technology development/ application: product and related business model design, development and prototyping;
- creation of a business that utilizes the technology/application developed to generate value.

Bailetti (2012:9) emphasizes that technology entrepreneurship:

- is about creating and capturing value for the firm through projects that combine specialists and assets to produce and adopt technology;
- involves collaborative experimentation and production of new products, new assets, and their attributes, which are intricately linked to scientific and technology advances and the firm’s asset ownership rights;
- may entail projects that search for problems or applications for a particular technology, launch new ventures, introduce new applications, and exploit opportunities that rely on scientific and technical knowledge provided that their ultimate outcome is to create and capture value for the firm;
- is not about the general management practices used to operate small businesses owned by engineers or scientists or just about small businesses.

The proposed definitions of technology entrepreneurship state explicitly various outcomes including value creation (Bailetti, 2012; Petti & Zhang, 2011), value capture (Bailetti, 2012), enhancing the quality of life (Mirchev & Dicheva, 2013), satisfaction of newly originated needs (Mirchev & Dicheva, 2013), creation of new resource combinations (Burgelman et al., 2004), creation of new technology-based firms (Gans & Stern, 2003; Antoncic & Prodan, 2008; Colovic & Lamotte, 2015), creation of (new/innovative) products, services or processes (Spiegel & Marxt, 2011; Pathak et al., 2013). There are different levels of analysis in technology entrepreneurship (Spiegel & Marxt, 2011; Burgelman et al., 2004; Phan & Foo, 2004). Burgelman et al. (2004:3) emphasize that technology entrepreneurship “can involve one individual (*individual entrepreneurship*) or the combined activities of multiple participants in an organization (*corporate entrepreneurship*)”. Phan & Foo (2004:2) outline the following levels of analysis:

- Individual level: scientists/entrepreneurs, venture capitalists, and other individuals that contribute to technology entrepreneurship;
- Organizational level: technological teams, structures, processes, and interorganizational linkages influencing value creation;
- Systems level: players in the ecology of value creation (governing factors, industry standards, and the economics of geographical locations).

Spiegel & Marxt (2011) also identify three levels of analysis related to product / service, business / firm, and the system as a whole and distinguish between new entrants and existing firms. They argue that both new technology-based firms and incumbent technology-based firms play a significant role for the commercialization of new technologies, but different issues in technology entrepreneurship may receive a different focus in new and existing technology-based firms (Spiegel & Marxt, 2011).

Several authors have attempted to identify distinctive characteristics of technology entrepreneurship. Beckman et al. (2012) argues that technology entrepreneurship emerges between two major fields: entrepreneurship and technology-based innovation. According to Beckman et al. (2012) technology entrepreneurship may be distinguished from mainstream entrepreneurship because it is concerned with new opportunities stemming particularly from innovation in science and engineering. Bailetti (2012:10) identifies several differentiating aspects of technology entrepreneurship relative to economics, entrepreneurship and management which require particular attention:

- the interdependence between scientific and technological change and the selection and development of new products, assets, and their attributes;
- the application of technology entrepreneurship to both new and established firms as well as to both small and large firms;
- conceptualization of technology entrepreneurship as an investment in a project;
- the interdependence between technology entrepreneurship and the resource-based view of sustainable competitive advantage;
- the interdependence between technology entrepreneurship and the theory of the firm.

Hsu (2008) emphasizes that technology entrepreneurship, by its nature, is an innovation-based, which can be interpreted as a barrier to entry and therefore technology entrepreneurship may be differentiated from other forms of entrepreneurial entry. Barr et al. (2009) distinguishes between teaching general entrepreneurship and teaching high technology-focused entrepreneurship. They stress that technology entrepreneurship education creates specific challenges stemming from its greater reliance on existing and emerging technologies as a learning base.

As technology entrepreneurship research is growing in volume, breadth and diversity, several studies tried to review technology entrepreneurship research in terms of terminology, structure and content and to identify directions for future research (Ratinho et al., 2015; Ferreira et al., 2015; Bailetti, 2012; Spiegel & Marxt, 2011). Examining various definitions of technology entrepreneurship proposed in the literature, Bailetti (2012:9) concludes that technology entrepreneurship is about:

- operating small business owned by engineers or scientists;
- finding problems or applications for a particular technology;
- launching new ventures, introducing new applications, or exploiting opportunities that rely on scientific and technical knowledge; and
- working with others to produce technology change.

Bailetti (2012) demonstrates that themes in technology entrepreneurship research may be organized in three clusters focusing on technology venture formation, small technology firms, and mid-sized and large firms. Based on a categorized bibliometric analysis, Ferreira et al. (2015) found three different approaches in technology entrepreneurship research (institutional approach, governmental and financial approach, and environmental approach) which reflect the conditions contributing to the development of technology entrepreneurship. Institutional approach highlights that the key factors for the development of technology entrepreneurship are the existence of institutions and the support for research that they can provide. The governmental and financial approach suggests that the existence of governmental supporting

policies depends on the development of high-tech companies. The environmental approach posits that environments with unique characteristics stimulate the growth of technology entrepreneurship.

Spiegel & Marxt (2011) develop a comprehensive framework which describes the scope of technology entrepreneurship and identifies research topics and research questions specific to the field of technology entrepreneurship. At the product and service level, the main research interests are related to creativity and idea management, development of products and services, and life cycle and technological trajectory management. At the business/ firm level the main research themes include opportunity recognition, business model creation, operations, program and project management, organizational learning and knowledge management, strategic renewal, and business model innovation. At the system level, research investigates how technology-based firms are embedded in the environment and the necessary conditions for their success. Therefore, topics such as science, technology, and innovation policy, technology transfer, innovation initiative implementation, innovation monitoring, and trend recognition are addressed as part of technology entrepreneurship.

### 3. RESEARCH METHODOLOGY

This study utilizes a cross-sectional survey among science and engineering students in Bulgarian universities. The survey was administrated to students in science or engineering majors in 15 Bulgarian public universities in 2015 and 2016. A quota sampling technique was adopted for data collection. The sample includes 1061 students and it has the same proportions of science and engineering students from the different universities as the entire population of science and engineering students in the selected 15 universities. The students included in the sample are enrolled in various professional files.<sup>1</sup> The questionnaire used in the study included questions, which requested a broad array of information related to demographic characteristics of respondents, personality attributes, motives for start-up, entrepreneurial intentions, attitudes toward entrepreneurship, entrepreneurial behavior, the presence of entrepreneurial role models, social network support, entrepreneurship education, perceptions of university environment, perceptions of entrepreneurship and environment. A pilot study was conducted among 15 students (8 males and 7 females) in order to pre-test the initial version of the questionnaire. Due to comments from some students, minor changes were introduced in some questions. With the approval and cooperation of rectors, deans, department heads and lecturers in 15 Bulgarian universities, a questionnaire was distributed during class sessions. Students were informed that the participation in the survey was voluntary.

In the instructions to respondents with regard to filling procedure they were advised that the instrument should be completed anonymously and that it was important to answer all questions. In order to secure a high response rate, to monitor respondents while they were answering the questionnaire, and to be able to answer further questions from respondents, the author was present during the data collection. If missing information was identified when the respondents were submitting the filled questionnaires, the respondents were politely asked to complete it. The sample for this study is composed of only 52 science and engineering students, who are nascent technology entrepreneurs (30 students) or intrapreneurs (22 students). Technology entrepreneurship is defined as the creation of a new technology-based business while technology-based business is described as a business whose products or services depend largely on the application of scientific or technological knowledge (Allen, 1992). Nascent technology entrepreneurs are people, who alone or with others are currently trying to start a new technology business. Nascent technology intrapreneurs are people who alone or with others are currently trying to start a new technology business (such as establishing a new outlet or subsidiary, or launching new products and new product-market combinations) or a new technology venture for their employer as part of their normal work.

### 4. EMPIRICAL FINDINGS

Table 1 reveals the frequency of start-up activities of nascent technology entrepreneurs. Students who alone or with others are currently trying to start a new technology business are most frequently involved in searching tangible and intangible resources, organizing a team, market research, product and service development, money saving and developing a business plan. Start-up activities less frequently reported by the respondents include acquisition of tangible and intangible resources, contacts with external environment (suppliers, distributors, clients, public administration, etc.), investment of financial resources, applying for patents and licenses, applying for finance, obtaining finance.

<sup>1</sup> The sample includes students enrolled in the following professional fields: communication and computer equipment, informatics and computer sciences, biotechnologies, electrical engineering, electronics and automation, power engineering, transport, navigation and aviation, general engineering, biological sciences, chemical sciences, chemical technologies, architecture, construction and geodesy, earth sciences, minerals prospecting, extraction and processing, mechanics, energetics, food technologies.

**Table 1.** Start-up activities of nascent technology entrepreneurs

Start-up activities	N
Searching tangible and intangible resources	23
Organizing a team	21
Market research	19
Product and service development	13
Money saving	13
Developing a business plan	12
Acquisition of tangible and intangible resources	11
Contacts with external environment (suppliers, distributors, clients, public administration, etc.)	9
Investment of financial resources	7
Applying for patents and licenses	6
Applying for finance	5
Obtaining finance	5

Source: Created by author

The nascent technology entrepreneurs included in the study perceive various barriers to their entrepreneurial activities (Table 2). The most frequently cited barriers include the complex legislation, strong competition, lack of financial resources, and lack of tangible and intangible resources. Other less frequently cited barriers are the lack of partner, lack of qualified personnel, finding a partner, and lack of entrepreneurial skills.

**Table 2.** Barriers perceived by the nascent technology entrepreneurs in the study

Start-up activities	N
Finding a business idea	14
Lack of partner	12
Lack of financial resources	20
Lack of qualified personnel	13
Lack of tangible resources	17
Lack of intangible resources	17
Lack of entrepreneurial skills	11
Complex legislation	22
Strong competition	20

Source: Created by author

Table 3 reports the career motives of the nascent technology entrepreneurs in the study. The respondents exhibit diverse career motives including economic opportunity, challenging job, autonomy, authority, self-realization, participation in the whole process.

**Table 3.** Career motives of the nascent technology entrepreneurs in the study

Start-up activities	N
Economic opportunity	22
Challenging job	23
Autonomy	21
Authority	22
Self-realization	22
Participation in the whole process	19

Source: Created by author

The frequency of various start-up activities undertaken by the nascent technology intrapreneurs is reported in Table 4. The studied nascent technology intrapreneurs are most frequently involved in searching tangible and intangible resources, organizing a team, market research, product and service development, and money saving. Start-up activities less frequently mentioned by the respondents include developing a business plan, acquisition of tangible and intangible resources, contacts with external environment (suppliers, distributors, clients, public administration, etc.), investment of financial resources, applying for patents and licenses, applying for finance, obtaining finance. These findings are similar to the findings about the studied nascent technology entrepreneurs (Table 1).

**Table 4.** Start-up activities of the nascent technology intrapreneurs in the study

Start-up activities	N
Searching tangible and intangible resources	17
Organizing a team	18
Market research	14
Product and service development	16
Money saving	13
Developing a business plan	6
Acquisition of tangible and intangible resources	11
Contacts with external environment (suppliers, distributors, clients, public administration, etc.)	10
Investment of financial resources	7
Applying for patents and licenses	0
Applying for finance	3
Obtaining finance	2

Source: Created by author

Table 5 reveals the frequency of the barriers to entrepreneurial activities perceived by the nascent technology intrapreneurs. The most frequently mentioned barriers include the complex legislation, strong competition, lack of financial resources, and lack of tangible and intangible resources. the lack of partner, lack of qualified personnel, finding a partner. Other less frequently cited barriers are the lack of entrepreneurial skills and lack of support by top management. The studies nascent technology intrapreneurs tend to consider less frequently the lack of entrepreneurial skills as a barrier to their entrepreneurial activities than the nascent technology entrepreneurs included in the study.

**Table 5.** Barriers perceived by the nascent technology intrapreneurs in the study

Start-up activities	N
Finding a business idea	6
Lack of support by top management	5
Lack of partner	8
Lack of financial resources	8
Lack of qualified personnel	10
Lack of tangible resources	7
Lack of intangible resources	7
Lack of entrepreneurial skills	2
Complex legislation	10
Strong competition	17

Source: Created by author

The studied nascent technology intrapreneurs exhibit diverse career motives for undertaking entrepreneurial activities (Table 6). The most frequently cited career motives include economic opportunity, challenging job, autonomy, and participation in the whole process. Authority and self-realization are reported as career motives less often than other career motives, which is a major difference in the frequency of the reported career motives between the studied nascent technology intrapreneurs and entrepreneurs (Table 3).

**Table 6.** Career motives of the nascent technology intrapreneurs in the study

Start-up activities	N
Economic opportunity	18
Challenging job	20
Autonomy	19
Authority	13
Self-realization	10
Participation in the whole process	18

Source: Created by author

## 5. CONCLUSIONS

It was acknowledged that knowledge-based entrepreneurship is an engine for economic growth, employment generation and competitiveness in an entrepreneurial society (Audtersch, 2009). Increasing interest by academics and policy makers is devoted particularly to technology entrepreneurship for its significant contribution to economic progress (Mosey et al., 2017). Universities need to operate more entrepreneurially and to create favourable conditions for entrepreneurship among students and academics (Kirby, 2006). This study examines the motives, perceptions of barriers and start-up activities of Bulgarian nascent student technopreneurs. The study distinguishes between students, who alone or with others are currently trying to start a new technology business (nascent technology entrepreneurs) and students who alone or with others are currently trying to start a new technology business (such as establishing a new outlet or subsidiary, or launching new products and new product-market combinations) or a new technology venture for their employer as part of their normal work (nascent technology intrapreneurs). The study identifies only 52 science and engineering students, who are nascent technology entrepreneurs (30 students) or intrapreneurs (22 students) in a sample of 1061 science and engineering students included in the research. This may be explained with the low quality and inefficiency of entrepreneurship support services and initiatives in the studied universities. Bulgarian universities not only exhibit narrow understanding of the concept of innovative and entrepreneurial university, but also do not recognize entrepreneurship promotion as a strategic goal (OECD, 2014). The research findings reveal the most important motives, most frequently performed startup activities and the perceived barriers to nascent student technopreneurship. There are differences in the motives, startup activities and perceptions of barriers between Bulgarian nascent student entrepreneurs and intrapreneurs.

The reported empirical findings open several new directions for future research. First future research should provide greater understanding of the impact of various educational variables related to entrepreneurship education such as teaching methods, learning outcomes, educator teaching beliefs, etc. on nascent technopreneurship. Second, future studies need to identify effective entrepreneurship support services and activities that stimulate nascent technopreneurship. Future research with longitudinal design is necessary to provide insights about university-related factors at individual and organizational levels that contribute to nascent technopreneurship.

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## BUGARSKI STUDENTI TEHNOPODUTENICI: MOTIVI, PERCEPCIJA BARIJERA I STARTUP AKTIVNOSTI

### SAŽETAK

Cilj istraživanja je identificirati motive, startup aktivnosti i percepciju barijera novih bugarskih tehnopoduzetnika. Ovo istraživanje koristi bazu podataka o tehnološkom poduzetništvu prikupljenu presječnim istraživanjem među studentima znanstvenih i tehničkih usmjerenja na 15 bugarskih sveučilišta. Tehnološko poduzetništvo definira se kao stvaranje novog poslovanja temeljenog na tehnologiji, dok se poslovanje temeljeno na tehnologiji opisuje kao posao čiji proizvodi ili usluge uvelike ovise o primjeni znanstvenog ili tehnološkog znanja (Allen, 1992.). Za ovo istraživanje korišten je uzorak iz baze podataka, a čine ga studenti znanstvenih i tehničkih usmjerenja koji su uključeni u novonastalo tehnološko poduzetništvo. Rezultati istraživanja pokazuju najvažnije motive, najčešće izvođene startup aktivnosti i uočene prepreke za novonastalo studentsko tehnopoduzetništvo. Postoje razlike u motivima, startup aktivnostima i percepcijama barijera između bugarskih studentskih poduzetnika u nastajanju i ostalih poduzetnika. Studija daje preporuke za buduća istraživanja.

**KLJUČNE RIJEČI:** novonastali tehnopoduzetnici, motivacija, startup aktivnosti, prepreke





**M-SPHERE**

