

## THE NATIONAL CULTURE EFFECT ON THE ADOPTION OF INTERNET-BANKING

*This paper analyses the relationship between the national culture (Hofstede's cultural dimensions Individualism, Uncertainty Avoidance index and Power Distance index, as well as Minkov's Indulgence vs Restrain index) and the adoption of Internet banking in 30 European countries. We presume, that if there is a strong correlation between them, some recommendations to the banking sector could be made to help them develop more effective marketing strategies to increase the adoption of e-banking, based on the cultural specifics in the particular country or clusters of countries. Our findings show that there is a strong correlation between those cultural dimensions and the adoption level of e-banking. In particular, it was found that the Individualism has a lead role in most of the cases. However, in the cases of a combination of high Uncertainty Avoidance and low Indulgence, the lead role of Individualism does not manifest.*

*We also argue, that in the cultural combination of high Individualism, and high Uncertainty Avoidance index with low Indulgence vs Restrain index, the combination of Individualism and Restrain factors reduces the influence of Uncertainty Avoidance, no matter how high it is.*

*We analyse and also discuss the influence of different other factors, which influence the adoption of Internet banking, looking for combinations which lead to specific effects.*

*JEL: M14; M15; G21*

### Introduction

The Internet-banking (e-banking) is one of the main avenues of development of the banking services, and it has been studied by many scholars in the last two decades. As far as the level of adoption differs country by country, e.g. Eurostat (2019) for the European countries, the influence of the particular factors on the process has been of significant interest. The researchers studied the effect of different factors, including familiarity with the Internet, perceived usefulness, perceived convenience and accessibility, perceived ease of use, perceived risk, perceived web security, intention to use, age, gender, income,

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national culture, and other. It is clear that if we know which factors play a more significant role in the process in a particular country, or in a group of countries, the banks would be in a better position to set more efficient strategies to accelerate the adoption of Internet banking.

The scholars use in their publications different terms to describe the Internet banking, including e-banking, online banking, mobile banking. In all cases, the same process and banking services, provided in the Internet environment using different devices, are presumed, and the terms are used as interchangeable. Considering this a good practice, in this paper, we will use all these terms as interchangeable as well.

### **Research Problem**

When we analyse the adoption levels of Internet banking, we presume that the bank clients form their attitude and behaviour about the type of services they use (online or with a human factor), based on a combination of factors, including a very important one – the trust they have in the online system/automation (trust in the system in general), as well as on human-automation interaction factor, or how reliable and safe they feel themselves using the sophisticated automation which actually provides the online operation (Wang, Pynadath & Hill, 2016; Chien, 2016; Martelaro, Nneji, Ju & Hinds, 2016). As Lee & See (2004) stated, the “trust (in automation) can be defined as the attitude that an agent will help achieve an individual’s goals in a situation characterised by uncertainty and vulnerability.” It is really important to study the factors which affect the development of such a trust.

While there is a plethora of research on the effect of other factors, including familiarity with Internet, perceived usefulness, perceived convenience and accessibility, perceived ease of use, perceived risk, perceived web security, intention to use, age, gender, income, and other (e.g. Polasik & Wisniewski, 2009; Krauter & Faullant, 2008; Shustova & Blagoev, 2018; Mattila, Karjaluoto & Pentto, 2003; Laforet & Li, 2005; Ling, Fern, Boon & Huat, 2016; Lin, 2018; Wang, Lo, Chi & Yang, 2004; Singh & Kaur, 2013; Geetha & Malarvizhi, 2012; Wai-Ching, 2008; Nadim & Noorjahan, 2008; Tesunbi, 2019; Venkatesh & Davis, 2000; Jun, Yang & Kim, 2004; Schierz, 2010, and other), the cultural factors have been studied much less. Shih-Yi (James) Chien (2016), in his excellent dissertation, studied the effect of cultural factors (Hofstede’s cultural dimensions and Triandis’ cultural syndromes) on the human-automation interaction.

Alabdan & Callen (2016), Shustova & Blagoev (2019) and Blagoev, Zhelev and Shustova (2019) provided some analysis of the influence of some cultural factors on Internet banking, but altogether, considering the importance of the problem the research of the effects of the national culture has been rather limited.

### **Research Objectives**

As we already stated, while there is a lot of research on many factors, which influence the dynamics of the Internet banking adoption by countries, the effect of the characteristics of the national cultures has not been studied enough. This research has the following goals:

**Objective 1:** Analyse if there is a relationship between the national culture (Hofstede's cultural dimensions) and the adoption of Internet banking by countries. If there is a strong correlation between them, some recommendations to the banking sector could be made to help them establish more trust, and then – the adoption of e-banking, based on the cultural specifics in the particular clusters of countries.

**Objective 2:** Analyse and discuss the influence of different factors, which influence the adoption of Internet banking, looking for combinations which lead to specific effects.

### **Literature Review**

This section contains a brief review of the publications on the main factors with substantial impact on the process. The factors are not listed according to their importance, because such a ranking is impossible. They are listed from most obvious to less considered factors, ending up with the national culture.

The main factors which influence the adoption and usage of online banking include:

#### *Familiarity with Internet*

Familiarity with Internet, which differs by countries, has been always one of the main considerations to explain why the level of e-banking usage differs (e.g. Polasik & Wisniewski, 2009; Krauter & Faullant, 2008; Mattila, Karjaluoto & Pento, 2003; Laforet & Li, 2005; Ling, Fern, Boon & Huat, 2016; Lin, 2018; Shustova & Blagoev, 2019). Polasik & Wisniewski (2009) studied the duration of internet banking usage, usage of internet at work and previous experience with Internet transactions, all defined as familiarity with the Internet, “positively affected the probability of using internet banking.” Krauter & Faullant (2008) studied the same factors in Austria and also found out that they have a positive effect. Laforet and Li (2005) reported that “the internet-banking users have more computer experience than the non-users”. Although such findings seem to be pretty logical at a personal level, they do not find support at a national level. For example, Blagoev, Zhelev & Shustova (2019) argue that although the level of Internet penetration in Kazakhstan (77% of the population) and in Bulgaria (67%) is rather high, this does not affect significantly the online banking adoption level, which in 2018 has been 10% in Kazakhstan and 7% in Bulgaria (Eurostat, 2019). They reported that “the level of digitalization does not seem to have a direct effect on the level of penetration of e-banking in the country, but is an important condition for its development”.

Brown and Molla (2005) studied the relationship between the use of mobile devices and adoption of e-banking in South Afrika and found out that both the adoption intent and perception of using mobile devices for communication differ from those of using Internet-banking. As they state, “... success with one channel does not automatically transfer to another channel.”

*Intention to use IT, and accessibility and compatibility with the used platforms*

These could be considered as a general predisposition to use IT-based platforms and devices (Thulani, Tofara & Langton, 2009; Kang, 2014; Brown & Molla, 2005; Shustova & Blagoev, 2019). The clients/users' ability to work with the necessary software and hardware/equipment, to use the services and obtain the needed information from the generally positive perception about the usage of Internet-banking vs or along with the traditional banking services, to which the clients have been accustomed. Back in 2001, Godwin-Jones (2001) and later Hackett, Parmanto & Zeng (2004) have underlined the importance of the webpage architecture to stimulate the usage of the e-services. This consideration has not lost its importance for the Internet-banking adoption nowadays as well. Blagoev & Shustova (2019) analysed the situation in Kazakhstan and reported that the participants in their survey also made suggestions to the banks to pay special attention to their web site architecture and ease of use.

*Perceived usefulness and satisfaction from using e-banking*

Singh & Kaur (2013), Geetha & Malarvizhi (2012), Wai-Ching (2008), Nadim & Noorjahan (2008), Tesunbi (2019), Venkatesh & Davis (2000), Jun, Yang & Kim (2004), Schierz (2010), Blagoev & Shustova (2019), and others have studied the perceived usefulness and found it to be a critical factor for the adoption of the e-banking. It is important to analyse the usefulness in relation to the satisfaction – from the transaction itself (e.g. Wang, Lo, Chi & Yang, 2004), or in both cases – overall satisfaction from using e-banking, as well as specific satisfaction from the fast and easy transactions (Jamal, 2004; Oliver, 1980; Salihu & Metin, 2017; Yoon, 2010). In general, the satisfaction can be defined as the feeling of the customer after purchasing the product or using the service (e.g. Oliver, 1980; Blagoev, 2003; Kotler & Keller, 2015; Salihu & Metin, 2017). It is clear that the quality of the provided e-banking services is closely related to customer satisfaction (Jabnoun & Khalifa, 2005). Alhinai, Albadi, Alshihhi & Al-Gharbi (2013), who investigated determinants of e-banking adoption by individuals, argue that the impact of system characteristics and user traits is very important for the easy adoption. The published results for the research of satisfaction from the e-banking confirm the effect of perceived satisfaction as defined above, for the use of Internet-banking at a personal level. We can say, that the satisfaction is related to the perceived ease of use, and as suggested by Venkatesh & Davis (2000) and Venkatesh & Morris (2000) it is one of the determinants for user's adoption of new technologies in general.

There is one more factor in line with the perceived ease of use and satisfaction – the mobility, understood as using services through mobile devices, including smartphones, laptops, palmtops, etc. Oganesyanyan & Danilovskikh (2016) studied the mobile banking in Russia, where Bank Tochka and Modulbank initiated offering mobile applications for smartphones. Later this was followed by Sberbank, Raiffeisen Bank, Moscow bank, VTBank and other. For example, Kim (2010), as cited by Lin (2018), and Oganesyanyan & Danilovskikh (2016), claim that mobility has a positive effect on the perceived usefulness of mobile payments. However, there are other studies, which did not find such a relationship. Schierz (2010) in Mexico and Blagoev & Shustova (2019) did not find a positive

relationship between mobility and perceived usefulness in Kazakhstan and Bulgaria in regard to the mobile e-banking services. In spite of the high percentage of smartphone users in these countries, the e-banking adoption is rather low.

#### *Perceived value*

The perceived value of e-banking services is also a significant factor (Alhinai, Albadi, Alshihhi & Al-Gharbi, 2013; Xiong, 2013; Wahab & Elias, 2010; Yang, Jun & Peterson, 2004) and this is quite understandable considering it in relation to the level of satisfaction from the easiness and save-of-time compared to the traditional banking services (e.g. Salihu & Metin, 2017). Of course, the perceived value might be formed based on totally different criteria, depending on the values system of the user. For some people, the time constraint is most important, for other the novelty, or even the perception that “this is what the people from my circle do” might be the decisive factor to consider the online banking of (high) value. Oganesyanyan & Danilovskih (2016) claim that the mobile applications for smartphones of Bank Tochka and Modulbank in Russia have stimulated the increase of mobile e-banking because these banks do not limit the amount of payments. This is obviously a specific value factor for the particular users.

#### *Perceived trust in automation*

The effect of trust in the automation ecosystem (hardware, software, and the way it operates, including the feeling of “talking to a robot”), in combination with the perceived value of online banking for the particular customers, has been studied by many researchers (e.g. Wakefield, 2001; Suh & Han, 2003; Wahab & Elias, 2010; Alhinai, Albadi, Alshihhi & Al-Gharbi, 2013; Xiong, 2013; Chien, 2016). All of them found a positive relationship between the trust in the Internet-banking as a system and the level of adoption of online banking. Shih-Yi (James) Chien (2016) studied the effect of cultural factors on trust (Hofstede’s cultural dimensions and Triandis’ cultural syndromes) in the human-automation interaction.

#### *Perceived risk of use, perceived web security*

Along with the perceived usefulness, the perceived risk of use has been a factor, that influences the adoption – either positively or negatively, depending on the level of perceived risk (Tesunbi, 2019; Tskhadadze, 2018; Serener, 2016; Kudryashov & Zagorskina, 2017; Ishakova & Ivanov, 2017; Geetha & Malarvizhi, 2012; Nadim & Noorjahan, 2008; Venkatesh & Davis, 2000; Porteous, 2006; Alizadeh, 2018; Howcroft, Hamilton & Hewer, 2002). The antecedents for this risk might be different. For example, Hoff & Bashir (2015) and Wang, Pynadath & Hill (2016) underline that there should be some level of “trust” of the user in the system which they will use. The perceived risk of use might be caused by the feeling that the security privacy is critical (e.g. Wai-Ching, 2008; Almogbil, 2005), or caused by technical ignorance of the user, and negative feeling towards the use of new technologies (e.g. Tesunbi, 2019; Nadim & Noorjahan, 2008),

which change the established patterns of behaviour – in this case towards brick-and-mortar banking. Howcroft, Hamilton & Hewer (2002) argue that most customers trust the bank they use, but “they have less confidence in technology for e-banking.” Malhotra & Singh (2009) found basically the same in India. In other words, the perceived risk of using online banking for them is too high, although they trust their bank. Geetha & Malarvizhi (2012) found out that in India perceived usefulness, perceived ease of use, and perceived risk in combination influence the decision of the client to adopt or not to use e-banking.

#### *Demographic and socio-economic factors*

The relationship between age (Rugimbana, 2007; Gan & Clemes, 2006; Hernandez & Mazzon, 2007; Blagoev & Shustova, 2019), genders (Li & Lai, 2011; Aljasser and Sasidhar, 2013; Alabdan, 2017), as well income level (Lassar, Manolis & Lassar, 2005; Ozdemir, Trott & Hoecht, 2008; Alabdan, 2017 and Alalwan, Dwivedi, Rana, Lal & Williams, 2015) and Internet-banking adoption has been also studied.

Alabdan (2017) studied the Saudi Arabian female perspective on the adoption of online banking and found out that easiness, convenience, security, trust, user-friendly, comfortable and availability are the main factors which stimulate such adoption. As seen, these factors are pretty much the same for the other genders and countries. Alabdan also found that the income does not play a significant role. To a large extent, these results confirm the findings of Al-Ashban & Burney (2001), who much earlier also found out that the income, education and gender do not play a significant role in the adoption in Saudi Arabia. In regard to the age of the users, in their study, Al Somali & Ghinea (2012) argue that the younger people are more adaptive to the new technology – online banking, simply because they are more comfortable with the use of IT. Mattila et al. (2003), whose survey was done in Finland, and Blagoev & Shustova (2019) in Kazakhstan also confirm the effect of age of the customers, as the more mature people in those countries claim more difficulties when working with the IT.

#### *National culture*

The effect of the national culture specifics on e-banking has not been studied extensively so far. Alabdan & Callen (2016) studied the effect of cultural constraints on the adoption of online banking based on Hofstede’s cultural dimensions.

Chien (2016) published the results of an excellent research on the influence of cultural factors on the trust in automation. He studied the Power Index, Uncertainty Avoidance Index and Individualism in their relationship with trust in automation in USA, Taiwan and Turkey. He found a positive correlation between the Uncertainty Avoidance Index (UAI) and trust. He found out that there is a confirmed correlation between UAI and general trust, and between Individualism and general trust in USA, but no significant correlation in the case of the Taiwanese and Turkish participants. Chien (2016) went further, studying to what extent the effects of trust, as observed in the Western cultures, apply universally in the three cultural syndromes (Triandis, 1994). He claims that these cultural syndromes of

Triandis – dignity cultures, face cultures, and honour cultures – correspond fairly well to Individualism Power Distance Index, and Uncertainty Avoidance Index – Hofstede's cultural dimensions (Chien, 2016, p. 24).

Blagoev, Zhelev & Shustova (2019) studied the Internet-banking adoption in Kazakhstan and Bulgaria, analyzing very briefly the effect of the national culture on the level of adoption. The results of the analysis support the view that the impact of national culture on the adoption of online banking has to be studied more systematically, based on a statistical analysis of the cultural dimensions and the Internet-banking adoption in different countries.

## **Methodology**

### *Research approach and strategy*

This research is based on secondary (published) data. We made our analysis at the ecological level, and our units of analysis are the European countries, not individual respondents. We do the research on the assumption that we can analyse the influence of cultural factors on the adoption of e-banking at country level based on cultural dimensions of G. Hofstede (1991) and Hofstede, Hofstede and Minkov (2010), also assuming the resent critiques of Michael Minkov on Hofstede's theory (Minkov, 2017).

We also assume that the published statistics for the adoption of Internet banking by countries (Eurostat, 2019) have been formed to some extent as a result of the impact of cultural factors on the customers' perception, and level of trust in the relatively new Internet technology and related platforms for e-banking. We use statistical methods of analysis, more specifically, Pearson's correlation analysis. In our understanding, if there is a strong correlation between the adoption levels of e-banking by countries, and the Hofstede's cultural indexes – respectively Individualism, Power Distance Index and Uncertainty Avoidance Index – the cultural factors have substantial role in forming the perception of customers at national level and adoption level of e-banking in the particular country.

The data about the development of the Internet banking is taken from Eurostat (2019). The statistics about the number of bank offices per country is taken from The International Monetary Fund, Financial Access Survey (The World Bank, 2019).

### *Limitations*

We limit our analysis to the European countries only which of course is a limitation to some extent. For example, we cannot analyse the three cultural syndromes (Triandis, 1994) in their relationship to e-banking, and respectively the face cultures and honour cultures, as these are not represented enough in Europe. Obviously, this has to be done in a future research.

## **Analysis and Discussion**

### *The effect of cultural factors on the e-banking adoption*

As we already mentioned above, the level of adoption of Internet banking differs country by country. According to Eurostat (2019), the adoption levels at 2018 are on Table 1.

Table 1

Level of adoption of Internet banking in Europe at 2018

No	Country	% using e-banking	No	Country	% using e-banking
1	Norway	93	16	Austria	58
2	Denmark	89	17	Malta	51
3	Netherlands	89	18	Slovakia	50
4	Finland	89	19	Spain	49
5	Sweden	84	20	Poland	44
6	Estonia	80	21	Slovenia	42
7	United Kingdom	74	22	Croatia	41
8	Belgium	69	23	Hungary	41
9	Luxembourg	68	24	Portugal	39
10	Latvia	66	25	Italy	34
11	France	63	26	Turkey	28
12	Czechia	62	27	Greece	27
13	Lithuania	61	28	Serbia	15
14	Germany	59	29	Bulgaria	7
15	Ireland	58	30	Romania	7

*Source: Eurostat (2019). E-banking and e-commerce.*

As data shows, the Nordic countries have a significantly higher level of adoption of e-banking, than the South-East European countries. The average level for the six Nordic countries (Norway, Denmark, Netherlands, Finland, Sweden and Estonia) is 87.33% while the average adoption level for the five South-East European countries is 16.8% only, which is about 5 times less. Such a big difference corresponds quite well to the cultural map of Minkov, Blagoev and Hofstede (2012), where the Nordic countries are on the right side, and the South-East European countries are grouped on the left side of the map. It is quite logical to presume that the cultural factors affect the adoption of online banking at a personal level, which is manifested at a national level as well.

To analyse the possible relationship between the e-banking adoption level and the cultural factors, we applied Pearson's correlation. We presume that a correlation around 0.6 and more, no matter positive or negative, will be a significant proof of relationship, which definitely would affect the Internet banking adoption in the particular country. We decided to use four of Hofstede's cultural dimensions – Individualism Index, Power Distance Index, Uncertainty Avoidance Index, and Indulgence vs Restrain of Minkov. There are different views on the validity of these indexes. For example, Minkov (2017) argues that Individualism is a robust dimension of national culture, while Power Distance "seems to be a logical facet of Individualism" and Uncertainty Avoidance lacks internal reliability. While agreeing with these arguments in principle, we believe, that if these four cultural



dimensions show high Pearson correlation coefficients, they will serve us well in understanding the adoption process. Even more, if Power Distance is a logical facet of Individualism, it has to show a similar correlation coefficient to Individualism, but logically its effect has to be opposite to that of Individualism. If these classical cultural dimensions do not show similar effect (no matter positive or negative), we would not be able to interpret the effect of the cultural factors on the process we study. Regarding the Uncertainty Avoidance Index, Minkov (2017) claims that "it is not a predictor of any of its presumed main correlates: importance of job security, preference for a safe job, trust, racism and xenophobia, subjective well-being, innovation, and economic freedom." Here trust is understood to a high extent as related to the interpersonal communication. In our case, we define trust as "general trust attitudes towards automation without reference to any specific uses of automated applications" (Chien, 2016). We presume that the service the Internet banking platform provides is as good as the one a highly competent bank officer could provide. From our point of view, the same consideration should be used as for the Power Distance – if there is a strong correlation with the adoption level by countries, we should consider this cultural dimension, Uncertainty Avoidance, as playing some role. If there is a strong correlation, one could advise the banks how to build up their marketing strategies as to influence the customers in the desired direction – adopt e-banking.

Figure 1

Cultural map of the world for 49 countries

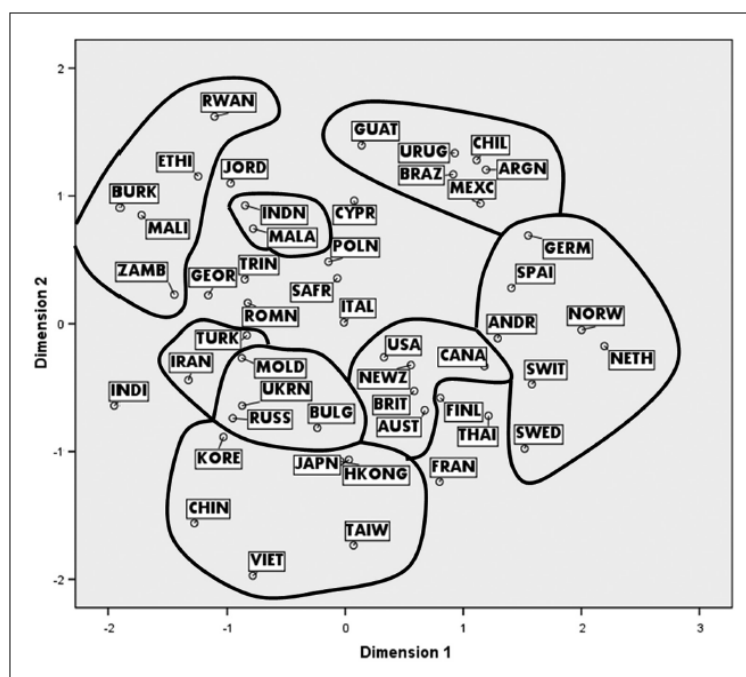


Figure 2. Multidimensional Scaling Plot of 49 Countries on the Six Items That Define the Personal-Sexual Factor  
Note: See the appendix at the end for expansions of country name abbreviations.

Table 2

Data for the Internet banking adoption and the cultural dimensions (Hofstede and Minkov)

COUNTRY	e-banking adoption (% , 2018)	Cultural dimensions			
		PDI	IND	UAI	Indulgence vs Restrain
Norway	93	31	69	50	55
Denmark	89	18	74	23	70
Netherlands	89	38	80	53	68
Finland	89	33	63	59	57
Sweden	84	31	71	29	78
Estonia	80	40	60	60	16
United Kingdom	74	35	89	35	69
Belgium	69	61	78	97	57
Luxembourg	68	40	60	70	56
Latvia	66	44	70	63	13
France	63	68	71	86	48
Czechia	62	57	58	74	29
Lithuania	61	42	60	65	16
Germany	59	35	67	65	40
Ireland	58	28	70	35	65
Austria	58	11	55	70	63
Malta	51	56	59	96	66
Slovakia	50	104	52	51	28
Spain	49	57	51	86	44
Poland	44	68	60	93	29
Slovenia	42	71	27	88	48
Croatia	41	73	33	80	33
Hungary	41	46	80	82	31
Portugal	39	63	27	104	33
Italy	34	50	76	75	30
Turkey	28	66	37	85	49
Greece	27	60	35	112	50
Serbia	15	86	25	92	28
Bulgaria	7	70	30	85	16
Romania	7	90	30	90	20

Sources: Eurostat (2019), Hofstede Insight (2019)

We use the data for the indexes for the three Hofstede’s cultural dimensions and Minkov’s Indulgence from Hofstede Insight (<https://www.hofstede-insights.com>) to calculate the Pearson correlation coefficients. Table 2 shows the data for the e-banking adoption and cultural dimensions indexes by countries.

The Pearson correlation coefficients are shown on Table 3.

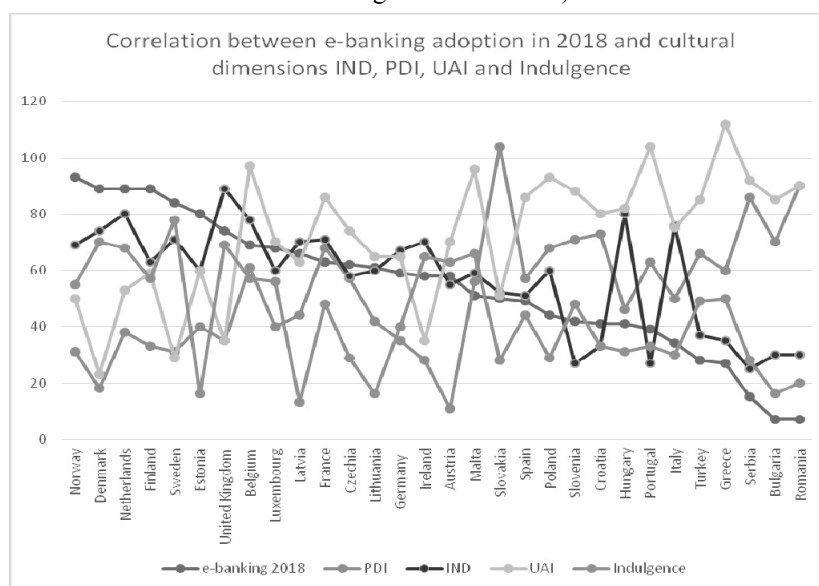
It is clear that the three indexes – Individualism Index, Power Distance Index and Uncertainty Avoidance Index – are very high (around +/-0.7) and we can definitely state that these cultural indexes influence significantly the Internet banking adoption. For the Indulgence, the correlation coefficient is weaker (0.52), but still, we will analyse it looking

for an explanation of some significant deviations from the trend for some particular countries. The correlation between the e-banking adoption and the four cultural dimensions with high correlation index are shown on Figure 2.

Table 3  
Pearson correlation coefficients between e-banking adoption by country and the cultural indexes

	Cultural dimension index (Hofstede's for IND, PDI, and UAI; Minkov's for Indulgence)	Pearson's Correlation coefficient (r)
e-banking adoption	Individualism	0.723617
e-banking adoption	Power Distance Index	-0.69162
e-banking adoption	Uncertainty Avoidance Index	-0.68523
e-banking adoption	Indulgence vs Restrain	0.524827

Figure 2  
Pearson's correlation between Internet banking and cultural dimensions (IND, PDI, UAI, and Indulgence vs Restrain)



It is seen that there is a strong positive correlation between e-banking adoption and Individualism (IND) and a strong negative correlation with Power Distance (PD) and Uncertainty Avoidance (UA).

When we analyse the significant deviations from the trend for each of the cultural factors, we see that they could be explained to some extent with the index in another cultural dimension. For example, the significantly different IND indexes of Hungary (80) and Italy (76), from the trend where the average for their neighbour-countries is 33, should lead to higher adoption level, than their actual one, *if IND would be the only cultural factor which*

*plays a role in the process.* Instead, we see that Hungary (41) and Italy (34) have two-three times lower level of e-banking adoption than the leading countries. This can be explained to some extent with their low Indulgence vs Restrain indexes (31 for Hungary, and 30 for Italy) in combination with relatively high UAI (82 for Hungary, and 75 for Italy). These assumptions suggest to develop or modify the existing, marketing communication strategies in such countries to correspond to a higher extent to their cultural specifics – high UA index and high Restrain index. Any other marketing communication strategy would obviously fail in their cultural environment.

On the other hand, the analysis of the Indulgence vs Restrain cultural dimension (Hofstede, Hofstede & Minkov, 2010) shows that the correlation with the e-banking adoption would be higher, but for Estonia, Latvia and Lithuania, which have low Indulgence vs Restrain index (16 for Estonia, 13 for Latvia and 16 for Lithuania). These low Indulgence indexes combine with relatively high Individualism index (60 for Estonia, 70 for Latvia and 60 for Lithuania) and high Uncertainty Avoidance (60 for Estonia, 63 for Latvia and 65 for Lithuania). We argue that in the cultural combination of high IND, and high UAI with low Indulgence vs Restrain index, the combination of IND and Restrain factors reduces the influence of Uncertainty Avoidance, no matter how high it is. These considerations obviously should be used when developing more effective marketing communication strategies.

Based on the analysis above we argue that our Objective 1: Analyse if there is a relationship between the national culture (Hofstede's cultural dimensions) and the adoption of Internet banking by countries, is achieved. There is a strong correlation between the e-banking adoption and three of the Hofstede's cultural dimensions – Individualism ( $r = 0.72$ ), Power Distance ( $r = -0.69$ ) and Uncertainty Avoidance ( $r = -0.69$ ). The correlation coefficient between e-banking adoption and Minkov's Indulgence vs Restrain is  $r = 0.52$ , which is supportive enough of the view that the cultural factors affect the process of Internet banking adoption. As shown above, in the case of Hungary and Italy, their e-banking adoption levels could be explained partly with the influence of Indulgence vs Restrain cultural factor.

#### *The effect of the combination of cultural and other factors*

As discussed in the Literature review above, the published research shows five groups of factors, which influence the adoption of Internet banking at a national level:

- a. Familiarity with Internet, accessibility, as well as intention to use IT and level of compatibility with the used platforms
- b. Perceived value and perceived usefulness and satisfaction
- c. Perceived trust in automation, perceived risk of use and web security
- d. Demographic and socio-economic factors, e.g. age, gender, income, education
- e. Cultural factors.

There is no doubt that each one of these factors has some influence on the perception of the individual person to use, or not to adopt e-banking. However, at a national level, the effect of each of these factors often deviates from what we find based on surveys of different samples.

*Familiarity with Internet, accessibility, as well as intention to use IT*

Blagoev, Zhelev & Shustova (2019) studied the adoption of e-banking in Kazakhstan and Bulgaria paying special attention to the impact of the coverage of bank offices in these countries. The initial presumption was that the more bank offices there are on a particular territory, the lower the level of Internet banking adoption would be. However, the research did not prove that this factor has a significant effect. More than that, The World Bank (2019), on IMF's Financial Assets Survey, published very interesting results for the number of bank branches per 100,000 adults, which we combined with the data for the e-banking adoption per country (Table 4). The Pearson correlation coefficient for the e-banking adoption level per country and the number of bank branches per 100,000 adults is  $r = -0.42$ . As shown in Table 4, there are countries with very high coverage with bank branches and high Internet banking adoption levels, e.g. Luxemburg (71.1 per 100K and 68%), France (35 per 100K and 63%), Spain (58.6 per 100K and 49%), as well as countries with low number of branches and still modest e-banking adoption.

The Internet penetration is obviously a necessary condition for adoption, but at the same time, it does not seem to be a significant factor. For example, Bulgaria with 63% internet penetration and 7% e-banking adoption, and Kazakhstan with 83.4% Internet penetration and 10% e-banking adoption (Blagoev, Zhelev & Shustova, 2019) do not support the view that the Internet penetration is a decisive factor, although it is a necessary prerequisite.

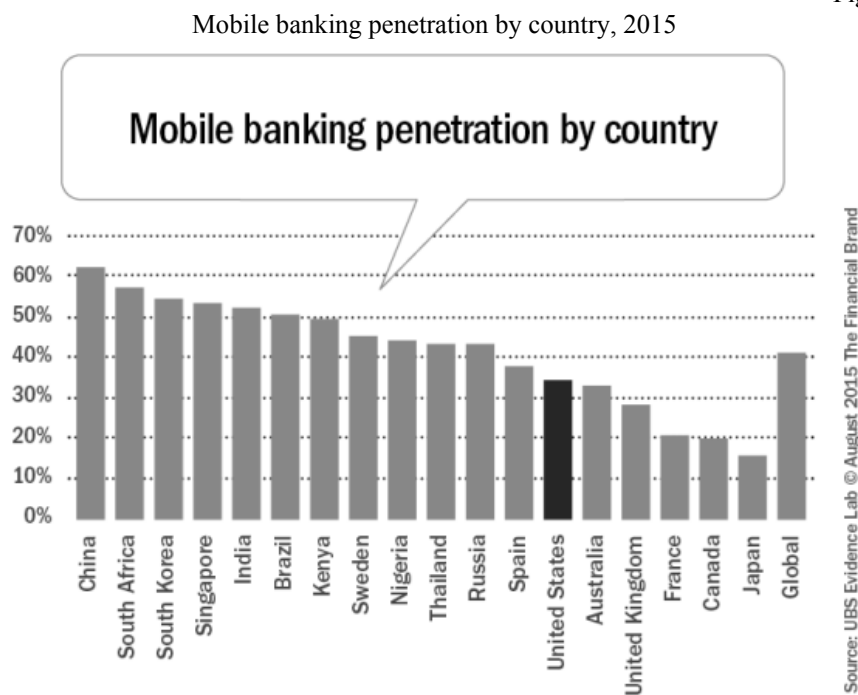
No	COUNTRY	e-banking % 2018	No bank branches per 100,000 adults	No	COUNTRY	e-banking % 2018	No bank branches per 100,000 adults
1	Norway	93	5.5	16	Austria	58	12
2	Denmark	89	20.7	17	Malta	51	32.4
3	Netherlands	89	11.9	18	Slovakia	50	26.9
4	Finland	89	1.4	19	Spain	49	58.6
5	Sweden	84	16.2	20	Poland	44	29.3
6	Estonia	80	10.1	21	Slovenia	42	29.5
7	United Kingdom	74	25.1	22	Croatia	41	32.5
8	Belgium	69	6.7	23	Hungary	41	14.6
9	Luxembourg	68	71.1	24	Portugal	39	30.2
10	Latvia	66	16.4	25	Italy	34	44.6
11	France	63	35.9	26	Turkey	28	17.4
12	Czechia	62	21.3	27	Greece	27	22.8
13	Lithuania	61	13.6	28	Serbia	15	28.2
14	Germany	59	12.9	29	Bulgaria	7	50.9
15	Ireland	58	20.7	30	Romania	7	26.6

Sources: Eurostat (2019) and The World bank (2019)

*Perceived value and perceived usefulness and satisfaction*

The perceived value and perceived usefulness and satisfaction is probably a very significant factor, related to the cultural norms as well. As shown on Fig.3, there are developing countries, e.g. India, Brazil and Kenya, where the mobile banking penetration is higher than that in the developed countries (Marous, 2015). China is a leader, according to this survey, with the comment that when we analyse high tech platforms and services, we cannot list China among the developing countries. Of course, we should not consider the mobile banking data as representative for e-banking in general, but still, the trends are similar. The UBS survey also shows that there is a higher level of customer satisfaction and related advocacy, in the cases of effective mobile banking services. Oganesyanyan & Danilovskih (2016) found similar results in their study in Russia. We can consider this true for the Internet banking as a whole, as we can presume that in both cases the customers are more economically active and technologically savvy, and in most case – these are the same customers.

Figure 3



*Source: Marous (2015) based on UBS Evidence lab*

*Perceived trust in automation, perceived risk of use and web security*

The perceived trust in automation, perceived risk of use and web security are very important considerations, as we have seen in the analysis of the cultural factors. As we have shown above, there are many publications (e.g. Wakefield, 2001; Suh &, Han, 2003;

Kolodinsky, Hogarth & Hilgert, 2004; Malhotra & Singh, 2009; Wahab & Elias, 2010; Alhinai, Albadi, Alshihi & Al-Gharbi, 2013, Xiong, 2013, and Chien, 2016) on this issue. All of them found a positive relationship between the trust in the Internet-banking as a system and the level of adoption of online banking. Based on these and other publications, and on our analysis above, we hypothesize that the level of perceived trust in automation and Internet banking depends significantly on the combined influence of Individualism, Uncertainty Avoidance and Indulgence. In most of the cases, in the countries with high Individualism index, the other factors do not affect much the e-banking adoption. However, the Internet banking adoption in Hungary and Italy show that in the cases of high Uncertainty Avoidance index and low Indulgence vs Restrain index (high restrain), the Individualism factor does not play the lead role in the people's attitude and perception, and the level of generated trust in the system as a whole remains low. Considering these specifics, we should develop such marketing communications strategies, which help to overcome the potential customers restrains, build up trust in e-banking, and motivate them to adopt the new technology and service.

#### *Demographic and socio-economic factors*

We discussed the demographic and socio-economic factors and their relationship to the Internet banking above, and because of that, we will not discuss them again here.

#### *Cultural factors*

The cultural factors were studied extensively above, and there is no need to discuss them here again, except for the note that we have concentrated on the European countries only in our analysis. We used Hofstede's cultural dimensions and Minkov's Indulgence vs Restrain factor, which serve well in the European context. However, if we take the data from Fig.3, we have to consider the cultural syndromes of Triandis (1994) – dignity cultures, face cultures and honour cultures – as instrumental if we analyse the national cultures in the world.

Altogether, the discussion on the factors above answers our Objective 1: Analyse the publications on the factors, which influence the adoption of Internet banking.

### **Conclusions**

The level of adoption of Internet banking differs significantly country by country, and this inspires interest to analyse the influence of the particular factors on the process. The effect of different factors has been studied, including familiarity with the Internet, perceived usefulness, perceived convenience and accessibility, perceived ease of use, perceived risk, perceived web security, intention to use, age, gender, income, national culture and other. It is clear that if we know which factors play a more significant role in the process in a particular country, or in a group of counties, the banks would be in a better position to set more efficient strategies to accelerate the adoption of Internet banking.

In this research we concentrated on the analysis of the cultural factors impact on the e-banking adoption in 30 European countries, using Hofstede's dimensions Individualism, Power Distance and Uncertainty Avoidance, and Minkov's Indulgence vs Restrain.

The analysis has shown that the cultural factors affect the adoption in some combination, although the Individualism has a lead role in most of the cases. However, in the cases of a combination of high Uncertainty Avoidance and low Indulgence, the lead role of Individualism does not manifest.

We also argue, that in the cultural combination of high Individualism, and high Uncertainty Avoidance index with low Indulgence vs Restrain index, the combination of Individualism and Restrain factors reduces the influence of Uncertainty Avoidance, no matter how high it is.

The discussion on the other factors based on previous research has shown certain influences in the process of adoption. It is clear that there is a positive relationship between the trust in the Internet-banking as a system and the level of adoption of online banking.

The most important conclusion is that the cultural factors, in combination, play a very important role in forming the attitude and human perception about the value, usefulness and satisfaction from the online banking, and support forming a trust in the e-banking automation, platform and services.

Altogether, our analysis (Fig.2 above) shows that the cultural factors have a very significant role in the process of adoption at a national level. The knowledge about the cultural specifics of the particular country can help to support the banks in developing more efficient marketing strategies for the adoption of e-banking services.

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