

Uncertainty avoidance level and purchase intention in Hungarian e-commerce

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THE AIM OF THE PAPER

The study investigates the impact of individuals' uncertainty avoidance level on the relationship between risk and purchase intention in Hungarian e-commerce. It also distinguishes between perceived risk and affective risk in the decision-making journey.

METHODOLOGY

The study conducts empirical research using a sample of 283 Hungarian online shoppers and applying structural equation modelling (SEM).

MOST IMPORTANT RESULTS

The findings show that perceived risk and affective risk negatively impact consumers' purchase intentions in Hungarian e-commerce. Further, uncertainty avoidance negatively moderates the relationship between perceived risk and purchase intention. The study emphasises the role of affective risk in the decision-making journey. It also supports investigating cultural differences at an individual level in the literature on perceived risk in e-commerce.

RECOMMENDATIONS

This study suggests that companies may improve Hungarian consumers' perceptions regarding the seller's reliability, product quality, logistics capacity, etc. to diminish perceived risk and affective risk. Further, it reveals another approach to customer segmentation based on individual cultural values.

Keywords: perceived risk, affective risk, purchase intention, uncertainty avoidance, e-commerce

INTRODUCTION

The growth of e-commerce in Hungary has been gradual initially but has experienced significant expansion in recent years. Although e-commerce has become familiar to Hungarian e-shoppers, perceived risk is still a concern for Hungarian e-shoppers (Balogh & Mészáros 2020). Daragmeh *et al.* (2021) show that perceived risk diminishes Hungarian consumers' intentions to adopt a mobile payment system. According to Gáti and Simay (2019), perceived risk negatively impacts attitudes and intentions towards social mobile e-commerce in Hungary. Generally, most literature mainly focuses on the aspect of conventional (perceived) risks. Few studies examine the affective risks (negative feelings) of consumers when shopping online. Although acknowledging the presence of emotion, Featherman and Pavlou (2003) did not conceptualise this aspect. Further, limited literature focuses on emerging e-commerce markets like Hungary. Therefore, it might be meaningful to investigate Hungarian consumers. This paper raises the question:

RQ1. How does risk affect purchase intention in Hungarian e-commerce?

Further, the role of culture is still debated in e-commerce. Karahanna (2013) shows that individuals' behaviours are identified by their national culture. However, other scholars argue that culture does not always correlate to national borders (Lee *et al.* 2007a). In some cases, members of society even do not have the same cultural values (Yoo *et al.* 2011). Consumers are never a homogenous mass. Shopping habits and risk perceptions may differ significantly based on income, age, gender, and culture (Barabas 2023). Therefore, the study raises the question:

RQ2. Does the level of Hungarian consumers' uncertainty avoidance moderate the effect of perceived risk on purchase intention?

The study focuses on two major issues. First, it investigates the impact of Hungarian consumers' perceived risk and affective risk on purchase intentions in e-commerce. To the best of my knowledge, scholars have neglected the affective assessments integral to the customer experience. Second, it also examines the moderating role of uncertainty avoidance, a cultural dimension, in the effect of perceived risk on purchase intention based on the individual approach. The study enriches the current literature by diversifying approaches to risk perception and revealing the role of individual culture in shaping consumers' behaviours in e-commerce.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Theoretical background

As an extension of the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB) integrates perceived behavioural control as a crucial driver of intention (Ajzen 1991). Accordingly, the risks associated with e-commerce transactions may affect consumers' buying intentions. The influence of perceived risk on transactional effectiveness is noteworthy, as uncertainty regarding transaction efficacy diminishes perceived control. Extensive research has demonstrated the significant impact of perceived risk on consumers' intentions within e-commerce.

By contrast, the Hierarchy of Effect (HOE) model was introduced as an approach to reduce psychological ambivalence in consumer attitudes. Lavidge and Steiner (1961) proposed a formalisation of the HOE model consisting of three steps: cognition (awareness or learning), affect (feeling, interest, or desire) and behaviour or conation (action).

Two aspects of risk in e-commerce

Risk perception is understood in two primary fundamental ways: risk-as-analysis (the analytic model) and risk-as-feelings (the affective model) (Slovic & Peters 2006). The analytic model focuses on logical, reason-based, and deliberative processing. By contrast, the affective model focuses on intuitive processing (Tompkins *et al.* 2018). Consequently, the concepts of perceived risk and affective risk are distinguished. Perceived risk captures the cognitive beliefs or calculations involved in a risky event, while affective risk captures a person's feelings. Affective risk does not require extended brain processing, suggesting less involvement in cognitive calculations, and hence may be promptly activated (Sha 2018).

The conventional perspective within the marketing domain often conceptualises risk as perceived risk. However, it is contrasted to a normal individual's judgement of risk. According to Finucane *et al.* (2000), an emotion often has a significant impact. The attribution of positive or negative emotions to items by individuals may act as a cognitive signal for the formation of judgements. The Affect-as-information model suggests that people will interpret their situations differently, relying on positive or negative feelings (Tompkins *et al.* 2018). Loewenstein *et al.* (2001) also assert that risk-related feelings go beyond

being a mere epiphenomenon in decision-making. Although literature has acknowledged the presence of negative feelings, they are not sufficiently considered in their conceptualisation and measurement.

Perceived risk is defined as the potential loss perceived by a consumer when considering the purchase of products online (Ariffin *et al.* 2018). Most scholars measure overall perceived risk without specifying risk types (Chiu *et al.* 2014). Other scholars agree that perceived risk should be understood as a multi-dimensional concept. Accordingly, overall perceived risk is derived from potential sources such as fraud risk (i.e., the possibility of a seller's unreliability), delivery risk (i.e., the possibility of not receiving the product on time or a long shipping time), financial risk (i.e., the possibility of losing money or additional charges), process & time loss risk (i.e., the possibility of a consumer's complexity and inconvenience), product risk (i.e., goods do not perform as expected), privacy risk (i.e., the potential loss of control over personal information), and information risk (i.e., the possibility of asymmetric information) (Alrawad *et al.* 2023, Pavlou *et al.* 2007, Pobe 2021b). Previous studies also revealed the significant impact of perceived risk in the pre-purchase stage. Accordingly, perceived risk lowers consumers' purchase intention in e-commerce (He *et al.* 2022, Sharma *et al.* 2022, PhamThi 2022). According to Lim *et al.* (2019), perceived risk negatively relates to buying intention in online shopping. Therefore, the paper proposes that:

H1. Perceived risk negatively impacts purchase intention in e-commerce.

By contrast, affective risk refers to immediate anticipatory emotions of risk (e.g., fear, worry, threat) that individuals experience while deciding or engaging in an action (Loewenstein *et al.* 2001). Éthier *et al.* (2006) revealed that consumers' risk perception can generate emotions such as fear or frustration during the online shopping experience. Further, the perceived risks, such as monetary loss and privacy invasion, will generate an affective risk and prevent them from pursuing further business transactions (Sha 2018). Therefore, the paper postulates that:

H2. Perceived risk positively impacts affective risk in e-commerce.

Further, negative feelings can directly influence consumers' purchase behaviour in e-commerce (Luo *et al.* 2018). Affective risk is also found to prevent consumers from checking out their shopping carts or drive them to switch intentions (Verhagen & Dolen 2011). According to Li *et al.* (2011), the initial emotions of consumers form their overall impression of a new e-commerce vendor and influence their behaviour regarding online information disclosure.

Therefore, the study postulates that:

H3. Risk-related feelings are negatively related to purchase intention.

Uncertainty avoidance as a cultural characteristic

Cultural factors shape several aspects of individual behaviour (Hofstede & Bond 1988). It refers to "the collective programming of the mind that distinguishes the members of one category of people from those of another" (Hofstede & Bond 1988, p. 6). Scholars identify the differences among people based on their cultural backgrounds. Therefore, culture can influence consumers' preferences and decisions (Chen *et al.* 2005). Cultural theories reveal various dimensions. However, uncertainty avoidance is, generally, one of the prominent cultural dimensions frequently investigated. It is defined as the degree to which people feel threatened by something uncertain and ambiguous (Hofstede & Bond 1988).

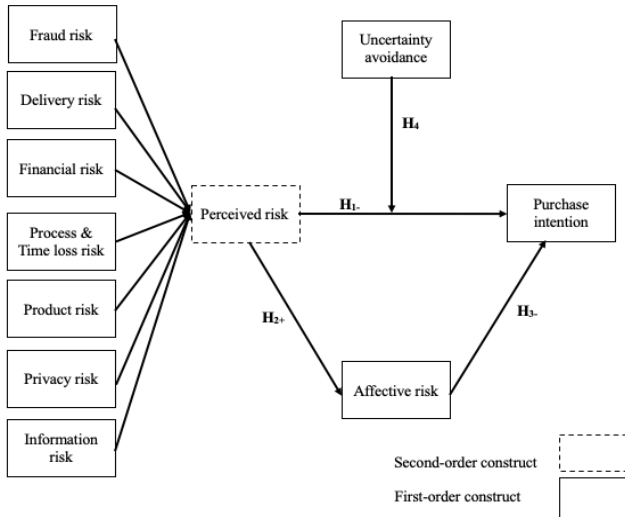
Most studies on cultural differences affirm that culture varies across nations (Lee *et al.* 2007b). However, the other stream argues that in some cases, members of society even do not have the same cultural values (Yoo *et al.* 2011). According to McCoy *et al.* (2005), the assumption of homogeneity is not appropriate as there is variability across individuals in or from any given nation. Further, the individual-culture value supports understanding consumers and achieving marketing success rather than national culture (Patterson *et al.* 2006). Therefore, the study applied the Individual Culture Value Scale (CVSCALE), introduced by Yoo *et al.* (2011) to measure the degree of uncertainty avoidance of Hungarian online consumers.

Consumers with a high uncertainty avoidance score tend to be risk-averse and hesitant to purchase online. In contrast, users with lower uncertainty avoidance are more comfortable making purchases online and have a more positive attitude about websites (Nath & Murthy 2004). Yoon (2009) shows that the uncertainty avoidance index may increase or decrease consumers' perceived risk. Further, AIKailani and Kumar (2011) reveal that in high-uncertainty avoidance groups, the perceived risk of internet purchasing is also high, negatively affecting internet purchasing. Therefore, the study postulates that:

H4. The negative effect of perceived risk on purchase intention is moderated by uncertainty avoidance.

The conceptual model is presented in Figure 1.

Figure 1. Conceptual model



Source: Own construction

METHODOLOGY

Survey design

This study employs a quantitative research approach based on data collected by online questionnaires. The survey was developed with the Google Forms software. The link was sent to respondents via emails and social media. The author also applied a purposive sampling technique for this research.

The survey was in 2 sections. Section 1 collected demographic information and specified the degree of uncertainty avoidance in Hungarian online consumers. Section 2 required respondents to indicate their level of agreement or disagreement with items on a 5-point Likert Scale ranging from 1 “strongly disagree” to 5 “strongly agree”.

The author adapted 7 sub-dimensions with 24 items from Naiyi (2004) to measure perceived risk. To measure affective risk, the scale of Sha (2018) with 4 items was applied. Purchase intention was measured by the scale of Pavlou (2003) with 2 items and uncertainty avoidance was measured by the CVSCALE of Yoo *et al.* (2011). The data was analysed using composite-based SEM.

Participants

Around 5.4 million Hungarians participated in e-commerce in early 2023. Therefore, the study’s target is Hungarian consumers with experience on e-commerce websites. The respondents’ selection criteria include, first, they must be Hungarian adults, and second, they should have personal experience on e-commerce platforms. The primary data collection took 4 weeks. In all, 500 respondents were contacted, out of which 283 filled out questionnaires that were handed in for the analysis. The response rate is 56.6%.

Table 1 indicates the demographic characteristics of the sample. The ratio of females exceeded the rate of males. This is meaningful, as women often spend more time shopping online. 69.96% of the respondents were aged between 18-25 years. In Hungary, 18 years old is the legal age. Since the study seeks to investigate online adult consumers’ risk perception and purchase intention in Hungary, it was prudent to sample online consumers who were 18 years of age and older. Respondents between 26-35 represented 30.04%. These two age groups are appropriate, as the majority of Hungarians aged 18 to 44 prefer online shopping. Furthermore, the ratio of students represented 63.96%, while that of full-time employment represented 36.04%. Regarding expenditure for online shopping, approximately 98% of the total sample spent under 100 USD monthly. Only 2% spend from 100-500 USD monthly.

Table 1. Demographic characteristics

Sample		HU (No)	HU (%)
Size		283	
Gender	Male	98	34.63
	Female	185	65.37
Age	18-25	198	69.96
	26-35	85	30.04
Employment status	Student	181	63.96
	Full-time employment	102	36.04
Monthly expenditure on online shopping	<100USD	277	97.88
	100-500USD	6	2.12

Source: Own construction

RESEARCH RESULTS

Measurement model

First, the study assesses the model with lower-order constructs. The test for overall model fit is acceptable ($d_{ULS}=0.8526$, $p>0.01$). Further, the SRMR is 0.0368, below the recommended threshold of 0.08, indicating a good model fit.

Table 3 in appendices shows that all indicator loadings are higher than 0.7, Dijkstra-Henseler's rho (ρ_A) and Cronbach's alpha (α) also exceed 0.7. Additionally, the AVEs are greater than 0.5, thus indicating acceptable convergent validity (Hair *et al.* 2017). The VIF values of all indicators are also below the threshold of 5, which is acceptable. The Fornell-Larcker criterion and the Heterotrait-motrait ratio of correlation (HTMT) are applied to assess discriminant validity (Fornell & Larcker 1981, Henseler *et al.* 2015). Accordingly, the results indicate that all values are statistically significantly smaller than 1 using the 95% percentile bootstrap confidence intervals. Therefore, the discriminant validity is ensured (see Appendices – Table 4, 5).

Second, the Goodness of fit (Gof) of the model containing the second-order composite is assessed. The saturated model fit is acceptable ($d_{ULS}=0.1843$, $p>0.01$) and the SRMR is below the recommended threshold of 0.05, indicating a good model fit. Furthermore, the estimated model also achieves a good fit ($d_{ULS}=0.1845$, $p>0.01$; SRMR=0.0329). To obtain further empirical evidence for the second-order composite, the author additionally examines the model fit of the same model but with the second-order construct modelled reflectively. Although the

Gof is still acceptable, the model fit significantly decreases ($d_{ULS}=0.1978$, $p>0.01$; SRMR=0.0340).

Finally, the second-order composite is evaluated. The nomological validity is achieved by the test for overall model fit. The second-order composite is formed by the factor scores of the first-order constructs. Therefore, its reliability has to be adjusted (Van *et al.* 2017). In this model, the reliability of the second-order composite was 0.9047. The weights of the second-order composite are significantly different from 0 on a 1% significance level (see Appendices – Table 3). The study concludes that the second-order construct (perceived risk) is appropriately modelled by a composite.

Structural model

The values of 0.542 and 0.787 for the R^2 are considered high in behavioural science. Figure 2 shows the explanatory power of endogenous constructs. The values of R^2 reveal that the degrees of explanatory power are 54.2% and 78.7%, respectively.

Additionally, the path coefficient estimates should be significant based on the percentile bootstrap confidence interval. Regarding significant path coefficients, an effect size (f^2) above 0.02, 0.15, and 0.35 indicates a small, medium, and large effect size, respectively (Cohen 1988).

Table 2 presents the results of the structural model supporting all hypotheses (H1-H4). The results show negative and significant effects of perceived risk and affective risk on purchase intention ($\beta=-0.6088$, $p<0.01$; $\beta=-0.3000$, $p<0.05$, respectively). Additionally, the results show a positive and significant effect of perceived risk on affective risk

($\beta=0.7362, p<0.01$). The results also confirm the significant partial mediating role of affective risk between perceived risk and purchase intention in e-commerce ($\beta=-0.2209, p<0.05$). Further, the results indicate the significant negative moderating effect of uncertainty avoidance on the relationship between perceived risk and purchase intention ($\beta=-0.3018, p<0.01$).

Table 2. Results of the structural model

	Hypothesis	Direct/Indirect /Moderating Effect	T-value	P-value (2-sided)	95% Confidence Interval (Percentile Bootstrap)	Effect size (f ²)	Supported
H1	Perceived risk -> Purchase intention	-0.6088	-3.7078	0.0002	[-0.9557, -0.2929]	0.5854	YES
H2	Perceived risk -> Affective risk	0.7362	14.0204	0.0000	[0.6276, 0.8338]	0.7362	YES
H3	Affective risk -> Purchase intention	-0.3000	-2.2723	0.0233	[-0.5327, -0.0146]	0.1935	YES
	Perceived risk -> Affective risk -> Purchase intention	-0.2209	-2.3068	0.0213	[-0.3933, -0.0116]	NA	YES
H4	Perceived risk * Uncertainty avoidance -> Purchase intention	-0.3018	-3.6642	0.0003	[-0.4475, -0.1138]	0.2214	YES

Source: Own construction

DISCUSSION

The study demonstrates a negative effect between consumers' perceived risk and their purchase intention in e-commerce. This indicates that as consumers' perceived risk increases on e-commerce platforms, their intentions decrease. This finding aligns with observations made by Amaro & Duarte (2015) and Gruntkowski & Martinez (2022). These scholars found that perceived risk can inhibit individuals from purchasing online since it negatively influences intentions. In other words, there is an expectancy-compliant relationship between perceived risk and purchase intention. With each additional unit of perceived risk, the value of intention decreases. Pobe (2021a) also demonstrates the role of information and website quality in repurchase intention.

Additionally, this study shows that the perceived risk can be understood based on 7 dimensions. It is consistent with studies by Glover and Benbasat (2010) that revealed that online consumers' concerns on different aspects are effective predictors of general perceived risk in e-commerce. However, while previous scholars focused on three to four aspects of perceived risk, this study collected and modelled perceived risk based on 7 dimensions.

The study also suggests that negative risk (worry and fear) partially mediates perceived risk and purchase intention. In other words, if e-consumers perceive high levels of risk, they are more likely to experience negative emotions that can influence their final decision-making. This finding aligns with

the results of previous studies conducted by (Sha 2017, 2018), who revealed that negative emotions (or affective risk) can mediate the relationship between perceived risk and purchase intention.

In addition, the study also identifies the moderating role of uncertainty avoidance as a cultural dimension in the effect of perceived risk on purchase intention. The relationship revealed in our study is consistent with previous studies, e.g., Alcántara-Pilar *et al.* (2018), prior scholars confirmed the moderating role of uncertainty avoidance in the relationship between perceived risk and intention. Further, this current study also affirms the appropriation in applying cultural values at the individual level to understand consumers' behaviours within a country. It is consistent with the research by Hwang and Lee (2012) who focused on the US e-commerce market.

CONCLUSION AND IMPLICATIONS

The study concludes that risk (i.e., perceived risk and affective risk) lowers Hungarian consumers' purchase intention. It also indicates the moderating role of uncertainty avoidance at the individual level in the effect of perceived risk on purchase intention. This study contributes theoretical, methodological, and practical insights into the marketing and consumer behaviour fields.

Regarding theoretical implications, the study combines the TBP theory and HOE model to develop a rational model of "perceived risk – affective risk – purchase intention".

tive risk – purchase intention”. This enriches the understanding of risk perception theory in e-commerce. The study highlights that the online decision journey is twofold and influenced by the presence of emotions. It recognises the significance of emotions in the decision-making process. However, while previous research, such as Kim and Lennon (2013), explored the role of positive emotions, this study specifically focuses on the negative emotions (affective risk) generated by consumers' perceived risk. These negative emotions are identified as “immediate visceral reactions” (e.g., anxiety, worry, and fear) that arise in response to risks. Consequently, it is different from perceived risk. Second, the study integrates the individual-culture approach in the literature on perceived risk in e-commerce. By applying the measurement scale at the individual level, the study demonstrates that consumers' perceptions and behaviours within a nation are not homogenous. It highlights that Hungarian consumers with higher levels of uncertainty avoidance place more emphasis on perceived risk than those with lower levels of uncertainty avoidance. This implies that in e-commerce, the individual culture may better shape the individual's perception and behaviour.

The study also provides methodological insights through modelling perceived risk as a second-order composite. This emphasises the nuanced nature of perceived risk and makes a significant methodological contribution to measuring risk in e-commerce.

This study offers practical implications for e-businesses. It highlights the importance of diminishing total perceived risk via its dimensions. Identifying sources of perceived risk provides references for companies to create strategies to mitigate consumers' perceived risk. For instance, approximately 54% of Hungarian e-shoppers have experienced a scenario wherein they either refrained from initiating the shopping process or terminated it before finalising their purchase due to an inability to locate a payment method deemed suitable (Reacty Digital 2021). Therefore, diversifying payment methods may increase the websites' attraction. Further, lowering affective risk is also essential for e-retailers and companies. The premise of this issue is rooted in improving consumers' perceptions regarding the seller's reliability, product quality, logistics capacity, convenience, privacy, and security that the website can provide. The study also suggests another approach to customer segmentation based on individual cultural values. It emphasises that risk-averse consumers are more sensitive than others. Consequently, sellers and e-commerce professionals should pay attention to this group of

consumers. For instance, e-retailers and e-businesses may offer customisation or charge a price premium for their online products, which offers risk-averse consumers a higher level of guarantee when making purchase transactions. Options such as delivery assurance or a refund guarantee can be meaningful to attract e-consumers.

This study acknowledges limitations. Firstly, the sample size of 283 may be small. It may not be effective to represent the whole Hungarian population. Further, applying only one cultural dimension may lack comprehensive analysis. Hence, in the future, adding more cultural dimensions will be necessary.

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REFERENCES

- Ajzen, I. (1991), “The theory of planned behavior”, *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Alcántara-Pilar, J.M., Armenski, T., Blanco-Encomienda, F.J., & Del Barrio-García, S. (2018), “Effects of cultural difference on users' online experience with a destination website: A structural equation modelling approach”, *Journal of Destination Marketing & Management*, 8, 301–311. <https://doi.org/10.1016/j.jdmm.2017.06.002>
- AlKailani, M., & Kumar, R. (2011), “Investigating Uncertainty Avoidance and Perceived Risk for Impacting Internet Buying: A Study in Three National Cultures”, *International Journal of Business and Management*, 6(5), 76, <https://doi.org/10.5539/ijbm.v6n5p76>
- Alrawad, M., Lutfi, A., Alyatama, S., Al Khattab, A., Alsoboa, S.S., et al. (2023), “Assessing customers perception of online shopping risks: A structural equation modeling-based multigroup analysis”, *Journal of Retailing and Consumer Services*, 71, March 2023, 103188. <https://doi.org/10.1016/j.jretconser.2022.103188>

- Amaro, S., & Duarte, P. (2015), "An integrative model of consumers' intentions to purchase travel online", *Tourism Management*, 46, 64–79. <https://doi.org/10.1016/j.tourman.2014.06.006>
- Ariffin, S.K., Mohan, T., & Goh, Y.-N. (2018), "Influence of consumers' perceived risk on consumers' online purchase intention", *Journal of Research in Interactive Marketing*, 12(3), 309–327. <https://doi.org/10.1108/JRIM-11-2017-0100>
- Balogh, Z., & Mészáros, K. (2020), "Consumer Perceived Risk by Online Purchasing: The Experiences in Hungary", *Náše Gospodarstvo/ Our Economy*, 66(3), 14–21. <https://doi.org/10.2478/ngoe-2020-0014>
- Barabas, B. (2023), "Price Sensitivity Remains Central in Online Shopping", *Budapest Business Journal*, BBJ.Hu, <https://bbj.hu/business/industry/retail/price-sensitivity-remains-central-in-online-shopping> (accessed 20 July 2023)
- Chen, H. (Allan), Ng, S., & Rao, A.R. (2005), "Cultural Differences in Consumer Impatience", *Journal of Marketing Research*, 42(3), 291–301. <https://doi.org/10.1509/jmkr.2005.42.3.291>
- Chiu, C., Wang, E.T.G., Fang, Y. & Huang, H. (2014), "Understanding customers' repeat purchase intentions in B2C e-commerce: the roles of utilitarian value, hedonic value and perceived risk.", *Information Systems Journal*, 24(1), 85–114. <https://doi.org/10.1111/j.1365-2575.2012.00407.x>
- Cohen, J. (1988), *Statistical Power Analysis for the Behavioral Sciences*, 2nd ed., L. Erlbaum Associates, Hillsdale, N.J.
- Drabgme, A., Lentner, C., & Sági, J. (2021), "FinTech payments in the era of COVID-19: Factors influencing behavioral intentions of 'Generation X' in Hungary to use mobile payment", *Journal of Behavioral and Experimental Finance*, 32, 100574, <https://doi.org/10.1016/j.jbef.2021.100574>
- Éthier, J., Hadaya, P., Talbot, J., & Cadieux, J. (2006), "B2C web site quality and emotions during online shopping episodes: An empirical study", *Information & Management*, 43(5), 627–639. <https://doi.org/10.1016/j.im.2006.03.004>
- Featherman, M.S., & Pavlou, P.A. (2003), "Predicting e-services adoption: a perceived risk facets perspective", *International Journal of Human-Computer Studies*, 59(4), 451–474. [https://doi.org/10.1016/S1071-5819\(03\)00111-3](https://doi.org/10.1016/S1071-5819(03)00111-3)
- Finucane, M.L., Alhakami, A., Slovic, P., & Johnson, S.M. (2000), "The affect heuristic in judgments of risks and benefits", *Journal of Behavioral Decision Making*, 13(1), 1–17. [https://doi.org/10.1002/\(SICI\)1099-0771\(200001/03\)13:1<1::AID-BD-M333>3.0.CO;2-S](https://doi.org/10.1002/(SICI)1099-0771(200001/03)13:1<1::AID-BD-M333>3.0.CO;2-S)
- Fornell, C., & Larcker, D.F. (1981), "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error", *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.2307/3151312>
- Gáti, M., & Simay, A.E. (2019), "How consumers can understand the role and relevance of social mobile e-commerce", in Csordás, T., Varga, Á. (Eds.), *DMMD Adapter*, Budapesti Corvinus Egyetem, Budapest, 9–17.
- Glover, S., & Benbasat, I. (2010), "A Comprehensive Model of Perceived Risk of E-Commerce Transactions", *International Journal of Electronic Commerce*, 15(2), 47–78. <https://doi.org/10.2753/JEC1086-4415150202>
- Gruntkowski, L.M., & Martinecz, L.F. (2022), "Online Grocery Shopping in Germany: Assessing the Impact of COVID-19", *Journal of Theoretical and Applied Electronic Commerce Research*, 17(3), 984–1002, <https://doi.org/10.3390/jtaer17030050>
- Hair, J.F., Hult, G.T.M., Ringle, C.M., & Sarstedt, M. (2017), *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, Thousand Oaks: Sage.
- He, Y., Li, W., & Xue, J. (2022), "What and how driving consumer engagement and purchase intention in officer live streaming? A two-factor theory perspective", *Electronic Commerce Research and Applications*, 56, 101223. <https://doi.org/10.1016/j.elerap.2022.101223>
- Henseler, J., Ringle, C.M., & Sarstedt, M. (2015), "A new criterion for assessing discriminant validity in variance-based structural equation modeling", *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Hofstede, G., & Bond, M.H. (1988), "The Confucius connection: From cultural roots to economic growth", *Organizational Dynamics*, 16(4), 5–21. [https://doi.org/10.1016/0090-2616\(88\)90009-5](https://doi.org/10.1016/0090-2616(88)90009-5)
- Hwang, Y., & Lee, K.C. (2012), "Investigating the moderating role of uncertainty avoidance cultural values on multidimensional online trust", *Information & Management*, 49(3), 171–176. <https://doi.org/10.1016/j.im.2012.02.003>
- Karahanna, E. (2013), "Uncertainty Avoidance and Consumer Perceptions of Global e-Commerce Sites: A Multi-Level Model", *Drake Management Review*, 3(1), p. 36.

- Kim, J., & Lennon, S. (2013), "Effects of reputation and website quality on online consumers' emotion, perceived risk and purchase intention: Based on the stimulus-organism-response model", *Journal of Research in Interactive Marketing*, 7, <https://doi.org/10.1108/17505931311316734>
- Lavidge, R.J., & Steiner, G.A. (1961), "A Model for Predictive Measurements of Advertising Effectiveness", *Journal of Marketing*, 25(6), 59–62, <https://doi.org/10.1177/002224296102500611>
- Lee, J., Garbarino, E., & Lerman, D.B. (2007a), "How cultural differences in uncertainty avoidance affect product perceptions", *International Marketing Review*, 24, 330–349. <https://doi.org/10.1108/02651330710755320>
- Lee, J., Ng, S., & Soutar, G. (2007b), "Tourists' intention to visit a country: The impact of cultural distance", *Tourism Management*, 28(6), 1497–1506. <https://doi.org/10.1016/j.tourman.2006.11.005>
- Li, H., Sarathy, R. & Xu, H. (2011), "The role of affect and cognition on online consumers' decision to disclose personal information to unfamiliar online vendors", *Decision Support Systems*, 51(3), 434–445. <https://doi.org/10.1016/j.dss.2011.01.017>
- Lim, J. X., Ng, S., & Basha, N. (2019), "To Retire or not to Retire: Intention towards Concept of Retirement Village in Malaysia", *Asian Journal of Business Research*, 9(1), 60-80. <https://doi.org/10.14707/ajbr.190056>
- Loewenstein, G., Weber, E., Hsee, C., & Welch, N. (2001), "Risk As Feelings", *Psychological Bulletin*, 127, 267–86. <https://doi.org/10.1037/0033-2909.127.2.267>
- Luo, S., Gu, B., Wang, X. & Zhou, Z. (2018), "Online Compulsive Buying Behavior: The Mediating Role of Self-control and Negative Emotions", *Proceedings of the 2018 International Conference on Internet and E-Business - ICIEB '18, presented at the the 2018 International Conference*, ACM Press, Singapore, Singapore, 65–69. <https://doi.org/10.1145/3230348.3230397>
- McCoy, S., Galletta, D.F., & King, W.R. (2005), "Integrating National Culture into IS Research: The Need for Current Individual Level Measures", *Communications of the Association for Information Systems*, 15(12), 211–224. <https://doi.org/10.17705/1CAIS.01512>
- Naiyi, Y. (2004), "Dimensions of Consumer's Perceived Risk in Online Shopping", *Journal of Electronic Science and Technology*, 2(3), 177–182.
- Nath, R., & Murthy, N.R.V. (2004), "A Study of the Relationship Between Internet Diffusion and Culture", *Journal of International Technology and Information Management*, 13(1), 123-132. <https://doi.org/10.58729/1941-6679.1247>
- Patterson, P.G., Cowley, E. & Prasongsukarn, K. (2006), "Service failure recovery: The moderating impact of individual-level cultural value orientation on perceptions of justice", *International Journal of Research in Marketing*, 23(3), 263–277. <https://doi.org/10.1016/j.ijresmar.2006.02.004>
- Pavlou, P.A. (2003), "Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model", *International Journal of Electronic Commerce*, 7(3), 101–134. <https://www.jstor.org/stable/27751067>
- Pavlou, P. A., Liang, H., & Xue, Y. (2007), "Understanding and Mitigating Uncertainty in Online Exchange Relationships: A Principal-Agent Perspective", *MIS Quarterly*, 31(1), 105, <https://doi.org/10.2307/25148783>
- PhamThi, V. (2022) "A game of perceived risk in social commerce transactions – A suggestion for the integration of the trust (payment) feature on social commerce platform sales", *The Hungarian Journal of Marketing and Management*, 56(1), 29–41. <https://doi.org/10.15170/MM.2021.56.01.03>
- Pobee, F. (2021a) "Towards online repurchase intention: A non-probabilistic approach to unpack its antecedents in Péc's", *The Hungarian Journal of Marketing and Management*, 55(2), 47–59. <https://doi.org/10.15170/MM.2021.55.02.05>
- Pobee, F. (2021b) "Modeling e-commerce adoption factors among Gen-Z in a developing country: the case of Ghana", *The Hungarian Journal of Marketing and Management*, 55(1), 81–94. <https://doi.org/10.15170/MM.2021.55.01.07>
- Reacty Digital (2021), "One year of e-commerce in Hungary: what and how did we buy online?", <https://reacty.digital/en/one-year-of-e-commerce-in-hungary-what-and-how-did-we-buy-online> (accessed 3 May 2023).
- Sha, W. (2017), "Examining the construct validities and influence of affective risk in B2C e-commerce", *Issues In Information Systems*, 18(4), 46-56. https://doi.org/10.48009/4_iis_2017_46-56
- Sha, W. (2018), "Development of an instrument for affective risk in business-to-consumer e-commerce", *Issues In Information Systems*, 19(3), 11-21. https://doi.org/10.48009/3_iis_2018_11-21
- Sharma, S., Singh, G., & Pratt, S. (2022), "Modeling the Multi-dimensional Facets of Perceived Risk in Purchasing Travel Online: A Generational Analysis", *Journal of Quality Assurance in*

Hospitality & Tourism, 23(2), 539–567. <https://doi.org/10.1080/1528008X.2021.1891597>

Slovic, P., & Peters, E. (2006), “Risk Perception and Affect”, *Current Directions in Psychological Science*, 15(6), 322–325.

Tompkins, M.K., Bjälkebring, P., & Peters, E. (2018), “Emotional Aspects of Risk Perceptions”, in Raue, M., Lermer, E. and Streicher, B. (Eds.), *Psychological Perspectives on Risk and Risk Analysis: Theory, Models, and Applications*, Springer International Publishing, Cham, 109–130. https://doi.org/10.1007/978-3-319-92478-6_5

Van, R.A.C.R., Henseler, J., Kemény, I., & Sasovova, Z. (2017), “Estimating hierarchical constructs using consistent partial least squares: The case of second-order composites of common factors”, *Industrial Management & Data Systems*, 117(3), 459–477. <https://doi.org/10.1108/IMDS-07-2016-0286>

Verhagen, T. & Dolen, W. (2011), “The influence of online store beliefs on consumer online impulse buying: A model and empirical application”, *Information & Management*, 48(8), 320–327. <https://doi.org/10.1016/j.im.2011.08.001>

Yoo, B., Donthu, N., & Lenartowicz, T. (2011), “Measuring Hofstede’s Five Dimensions of Cultural Values at the Individual Level: Development and Validation of CVSCALE”, *Journal of International Consumer Marketing*, 23(3), 193–210. <https://doi.org/10.1080/08961530.2011.578059>

Yoon, C. (2009), “The effects of national culture values on consumer acceptance of e-commerce: Online shoppers in China”, *Information & Management*, 46(5), 294–301. <https://doi.org/10.1016/j.im.2009.06.001>

Appendices

Table 3. Results for the assessment of the measurement model (part I)

Construct	Items	Types	Loadings /Weights	Cronbach's Alpha	rho A	AVE	VIF
Fraud risk		Reflective		0.8964	0.9008	0.6356	
	Fraud risk 1		0.8623				2.8465
	Fraud risk 2		0.7247				1.9352
	Fraud risk 3		0.7909				2.1538
	Fraud risk 4		0.7526				2.6429
Delivery risk	Fraud risk 5		0.8458				2.3532
		Reflective		0.9043	0.9068	0.7608	
	Delivery risk 1		0.8664				2.8988
	Delivery risk 2		0.7791				2.6409
Financial risk	Delivery risk 3		0.8567				3.533
		Reflective		0.9278	0.9286	0.7631	
	Financial risk 1		0.7863				3.2616
	Financial risk 2		0.7658				2.8716
	Financial risk 3		0.8512				3.3922
P&T Loss risk	Financial risk 4		0.8271				3.7284
		Reflective		0.8044	0.8062	0.58	
	P&T loss risk1		0.759				1.9494
	P&T loss risk2		0.7471				1.5177
Product risk	P&T loss risk3		0.7767				1.9738
		Reflective		0.8742	0.8767	0.6361	
	Product risk 1		0.8101				2.486
	Product risk 2		0.7567				1.7363
	Product risk 3		0.8542				2.3041
Privacy risk	Product risk 4		0.7653				2.4842
		Reflective		0.8419	0.8487	0.6436	
	Privacy risk 1		0.8709				2.2689
	Privacy risk 2		0.7679				1.8271
Information risk	Privacy risk 3		0.7624				2.0437
		Reflective		0.8617	0.8767	0.769	
	Information risk 1		0.9344				2.3815
			0.8102				2.3815

Table 3. Results for the assessment of the measurement model (part 2)

Affective risk		Reflective	0.8924	0.8931	0.8083
	AF1		0.8242		2.6297
	AF2		0.7811		2.1376
	AF3		0.7986		2.6713
Purchase intention		Reflective	0.8938	0.8943	0.6188
	PI1		0.9137		2.8805
	PI2		0.8843		2.8805
Uncertainty avoidance		Reflective	0.8903	0.8936	0.6749
	UA1		0.8533		2.4098
	UA2		0.7599		1.9189
	UA3		0.8445		2.226
	UA4		0.761		2.2064
Perceived risk		Composite	NA	NA	NA
	Fraud risk		0.0205		
	Delivery risk		0.3006		
	Financial risk		0.295		
	P&T Loss risk		0.1237		
	Product risk		0.1361		
	Privacy risk		0.1782		
	Information risk		0.1531		

Note. The weights differ from those displayed in Figure 2 as they were corrected for attenuation.

Source: Own construction

Table 4. Fornell-Larcker Criterion

Construct	Fraud risk	Delivery risk	Financial risk	P&T Loss risk	Product risk	Privacy risk	Information risk	Purchase intention	Uncertainty avoidance	Affective risk
Fraud risk	0.6356									
Delivery risk	0.5022	0.7608								
Financial risk	0.4911	0.3611	0.7631							
P&T Loss risk	0.5671	0.4197	0.3453	0.58						
Product risk	0.506	0.376	0.4072	0.5152	0.6361					
Privacy risk	0.3922	0.2658	0.31	0.3763	0.401	0.6436				
Information risk	0.4792	0.3374	0.4268	0.4267	0.5195	0.467	0.769			
Purchase intention	0.5264	0.3383	0.3795	0.4503	0.4778	0.439	0.4327	0.8083		
Uncertainty avoidance	0.259	0.1452	0.1757	0.3245	0.1943	0.1983	0.1694	0.3773	0.6188	
Affective risk	0.399	0.2651	0.2392	0.4337	0.3835	0.3727	0.3885	0.5378	0.1758	0.6749

Source: Own construction

Table 5. Heterotrait-Monotrait Ratio of Correlations (HTMT)

Construct	Fraud risk	Delivery risk	Financial risk	P&T Loss risk	Product risk	Privacy risk	Information risk	Purchase intention	Uncertainty avoidance	Affective risk
Fraud risk										
Delivery risk	0.7114									
Financial risk	0.7031	0.6002								
P&T Loss risk	0.7572	0.6477	0.5882							
Product risk	0.7129	0.6123	0.6386	0.7181						
Privacy risk	0.6293	0.5129	0.5584	0.6148	0.6328					
Information risk	0.6924	0.5796	0.6576	0.6548	0.7217	0.6877				
Purchase intention	0.725	0.5815	0.6162	0.6715	0.6912	0.6625	0.6595			
Uncertainty avoidance	0.5069	0.3807	0.4179	0.5707	0.4404	0.4448	0.4129	0.6129		
Affective risk	0.6301	0.5148	0.4888	0.6598	0.6193	0.6114	0.6251	0.7335	0.4189	

Source: Own construction