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Impact of Fear of Identity Theft and Perceived Risk on Online Purchase Intention

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Background and Purpose: Online activities are present in almost every aspect of people's daily lives. Online purchases are also increasing each year and therefore it is important to investigate what influences online purchase intentions. Online purchase intentions are among everything else, influenced by the fear of identity theft and perceived risk.

Design/Methodology/Approach: The online survey was conducted among 190 participants from Slovenia. The relations between the constructs of fear of financial losses, fear of reputational damage, perceived risk and online purchase intention were investigated.

Results: The research showed that the relations between the constructs of fear of financial losses, fear of reputational damage, perceived risk are positive and the relation between the constructs of perceived risk and online purchase intention were negative. All of the relations were statistically significant.

Conclusion: Understanding the impact of fear of identity theft and perceived risk on online purchase intention can be helpful for online sellers, because with these findings they can manage this fear and perceived risk to increase online purchase intention and address the risks accordingly. Online sellers should therefore regard new findings from the field of online sales. If an online store wants to have success in sales, they should consider all sides of customers' desires as well as their restraints.

Keywords: *e-commerce; fear of identity theft; online purchase intention; perceived risk; SEM*

1 Introduction

The development of information and communication technology has been fast and furious, which has resulted in the deep infiltration of technology use in almost every aspect of people's daily lives, such as banking transactions, entertainment, and business trade (Cai, Fan & Du, 2017; Park & Lee, 2011). It has increased interactions in the online environment (Blažun Vošner, Bobek, Kokol & Javornik Krečič, 2016) and has expanded from a technical level to commercial together with a social level (Zhu, Wang, Wang & Wan, 2016). Internet has emerged, not just as network for sharing information, but also as a useful

marketing tool to serve as a platform for domestic and international transactions (Lim, Osman, Salahuddin, Romle & Abdullah, 2016).

This new technological environment has generated a significant change in the behaviour, habits and trends of consumers, which leads to the increase of e-commerce (Fortes & Rita, 2016; Gerrikagoitia, Castander, Rebón & Alzua-Sorzabal, 2015). The growth of e-commerce is not likely to abate (Chen, 2012; Lai, 2014; Liao, Lin, Luo & Chea, 2016; Guritno & Siringoringo, 2013; Pei, Paswan & Yan, 2014; Shiau & Luo, 2012; Sin, Nor & Al-Agaga, 2012; Zhou, 2012), because consumers find it more economical and more convenient to shop online (Hong & Cha,

2013).

The growth in online transactions in e-commerce also brings worries, because it is endangered by the rise of cybercrime (Hille, Walsh & Cleveland, 2015), which can cause anxiety of online customers before conducting online purchases. Individual's personal data (name, date of birth, credit card number, etc.) constitute a person's unique online identity (Hille, Walsh & Cleveland, 2015), and they are needed every time we want to conduct an online purchase. Consumers' sense of vulnerability due to identity theft can lead to changes in their online behaviour (Milne, Labreque & Cromer, 2009).

After a consumer's realization that he or she will probably not experience online identity theft, he or she has to face another important shopping behavioural facet – perceived risk. According to Forsythe and Shi (2003), perceived risk is defined as “the subjectively determined expectation of loss by online customers in contemplating a particular online purchase.” Previous studies on online consumer behaviour research demonstrated that higher perception of perceived risk results in a decrease of online purchasing (Cho, Bonn & Kang, 2014; Egelin & Joseph, 2012).

The research presented here will focus on how the fear of identity theft and perceived risk influence the online purchase intention.

2 Literature Review

2.1 Fear of identity theft

Identity theft is a term used to categorize the fraudulent use of an individual's personal information for criminal purposes and without their agreement (Reyns, 2013). Online identity theft is an online fraud and describes crimes that involve the duplication of digital information or the high-jacking of online accounts for the purposes of committing identity fraud against individuals or businesses (Wall, 2013). It is a growing problem which affects individuals all over the world (Reyns & Henson, 2016).

Fear is one of eight primary emotions of humans which also include anger, joy, sadness, acceptance, disgust, expectancy, and surprise (Plutchik, 1980). Hille, Walsh and Cleveland (2015) defined fear of online identity theft as “an emerging negative consumer emotion activated through consumers' cognitive appraisal/own thoughts regarding the possibility of the theft of personal and financial data when conducting transactions online, which can also be generated by external stimuli (e.g., media reports thereof), which can then influence consumers' online behavioural outcomes”. Authors have proposed two dimensions of fear of online identity theft: fear of financial losses and fear of reputational damage.

The fear of financial losses dimension is defined as the

fear of illegal or unethical appropriation and usage of personal and financial data by an unauthorized entity with aim to get financial benefits (Hille, Walsh & Cleveland, 2015). Financial losses occur, when a victim's stolen personal and financial data is used for purchasing products at the victim's expense (Almoussa, 2011).

The fear of reputational damage is defined as fear of misuse of illegally acquired personal data with the aim of impersonation which can cause reputational damage to the victim (Hille, Walsh & Cleveland, 2015). Reputational damage occurs, when the identity thief uses a victim's credit card to fraudulently shop or to buy embarrassing products (Hille, Walsh & Cleveland, 2015), and it can cause a damaged name, hurt career opportunities or even being innocently accused of a crime committed by the identity thief (Miri-Lavassani, Kumar, Movahedi & Kumar, 2009).

2.2 Perceived risk

Although Internet offers consumers a number of benefits, there are some uncertainties involved with any online purchase process (Masoud, 2013). The importance of perceived risk in online shopping continues to be identified (Chen, 2010; Nepomuceno, Laroche & Richard, 2014; Aghekyan-Simonian, Forsythe, Kwon & Chattaraman, 2012). Perceived risk can be viewed as a major factor affecting the online shopping (Chiu, Wang, Fang & Huang, 2014), but it has been also recognized as one of the key motivators in consumer behaviour (Hong, 2015).

Perceived risk theory tries to help marketers to realize the world through consumer-based thought (Chen, 2010), where they can use risk analysis in marketing decisions (Mitchell, 1999). Perceived risk is an influential tool to explain consumers' behaviour because consumers are more often forced to avoid mistakes than to maximize efficacy in purchasing (Mitchell, 1999).

It can also be seen as “*the extent to which using the Internet to make purchases is perceived as risky in terms of credit card fraud, privacy of information and general uncertainty about the Internet environment*” (Martin, Mortimer & Andrews, 2015). Consumer behaviour involves some risk in any of consumer's action, which leads to consequences that he or she views with some uncertainty (Bauer, 1960); it will result in estimated outcomes, but some of them will not likely to be desirable (Forsythe, Liu, Shannon & Gardner, 2006; Liao, Lin & Liu, 2010). Therefore, they develop ways to reduce the risk perceived when participating in a transaction by searching for information that enables them to act with some confidence under uncertainty (Bauer, 1960). Perceived risk can be seen as the amount of money at stake in a purchase, and the consumer's subjective feelings of certainty about the favourableness of purchase consequences, focusing on loss and uncertainty (Cox, 1967).

Previous studies have revealed that perceived risk negatively influenced willingness to act a risky behaviour (Nicolaou & McKnight, 2006). Perceived risk reduces the willingness of consumers to buy goods over the internet (Barnes, Bauer, Neumann & Huber, 2007), for the reason that the risk related to probable cost from the online transaction compared to traditional one is higher (Aldás-Manzano, Lassala-Navarre, Ruiz-Mafe & Sanz-Blas, 2009).

2.3 Online purchase intention

Purchase intention is defined as the decision to act or as a mental stage in the decision making process where the consumer has developed an actual willingness to act towards an object or brand (Wang & Yang, 2008; Wells, Valacich & Hess, 2011). Customer online purchase intention is one of the intensive research areas in e-marketing and e-retail literature (Kwek, Tan & Lau, 2015).

Online purchase intention is the strength of a consumer's intentions to perform a specified purchasing behaviour via Internet (Hsu, Chang & Chen, 2012) in the future (Wu, Yeh & Hsiao, 2011), and it can be classified as one of the components of consumers' cognitive behaviour on how an individual intends to buy a specific brand (Kwek, Tan & Lau, 2015). Online purchase intention is defined as the situation when a customer is willing and intends to become involved in an online transaction (Pavlou, 2003), and it is led by their emotions (Ha & Lennon, 2010). An increase in purchase intention means an increase of the possibility of purchasing (Schiffman & Kanuk, 2007), but the final decision on accepting to buy a product, or rejecting it, depends on the consumers' intention (Madahi & Sukati, 2012; Wang & Tsai, 2014).

2.4 Connection between the fear of financial losses, fear of reputational damage and perceived risk

Research in the area of connection between the fear of financial losses, fear of reputational damage and perceived risk is relatively new. Based on studied literature and previous research, it has been indicated that two dimensions of fear of online identity theft – fear of financial losses together with fear of reputational damage, should be positively related to perceived risk, which should in the end negatively influence on online purchase intention. We formulated three hypotheses to determine relations between the three constructs. Proposed hypotheses were tested in the proposed model (Figure 1). The hypotheses are:

- H1: Fear of financial losses is positively related to perceived risk.
- H2: Fear of reputational damage is positively related to perceived risk.
- H3: Perceived risk is negatively related to online purchase intention.

3 Research methodology

3.1 Participants

The full set of questionnaires was completed by a total of 190 online participants, which represent our sample, of whom 98 (51.6%) were men and 92 (48.4%) were women. According to the marital status of respondents: 60 (31.6%) were married, 2 (1.1%) were widowed, 5 (2.6%) were divorced, 70 (36.8%) were 19 (10.0%) were single and 34 (17.9%) were in life partnerships. According to the employment status of respondents: 74 (38.9%) were students, 7 (3.7%) were self-employed, 46 (24.2%) were employed in public sector, 59 (31.1%) were employed in private sector, 1 (0.5%) was retired and 3 (1.6%) were unemployed.

According to the educational level of respondents: 1 (0.5%) was without primary education, 1 (0.5%) was with primary education, 2 (1.1%) finished secondary vocational education, 4 (2.1%) finished technical secondary education, 42 (22.1%) received high school diploma, 4 (2.1%) finished vocational college, 28 (14.7%) finished professional higher education, 66 (34.7%) received bachelor's degree, 27 (14.2%) received master's degree, and 15 (7.9%) received with doctoral degree.

The average age of respondents was 29.7 years. On the average they have been shopping online for 7.7 years, and they made 10.4 online purchases in the past year. The survey was conducted online and the majority of our sample consists of younger people who are also most involved in online activities. The students involved in the survey did not complete their studies and therefore stated their last completed level of education, which lowers the education levels in our sample.

3.2 Instruments

Fear of online identity theft scale (FOIT) was used for measuring consumer fear of online identity theft, developed by Hille, Walsh and Cleveland (2015). The 12-item scale is composed of 2 dimensions: fear of financial losses (e.g., "I am afraid that somebody could steal my money while I am transferring my personal data online"), and fear of reputational damage (e.g., "I am worried about my reputation being damaged due to the illegal use of my personal data online"). The response scale was a 5-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree). The coefficient of reliability (Cronbach's alpha) was 0.98 for fear of financial losses, and 0.94 for fear of reputational damage, respectively. The descriptive statistics for the items of the *Fear of online identity theft* scale (FOIT) are presented in Table 1.

Perceived risk was measured on scale developed by Chen, Yan, Fan and Gordon (2015) (e.g., "I am worried about the value of the product I received does not meet its

Table 1: Means and standard deviations for the items of Fear of online identity theft scale (FOIT)

Item	n	M	SD
<i>Fear of financial losses</i>			
I am afraid that somebody could steal my money while I am transferring my personal data online.	190	1,91	1,205
I am scared that a criminal could use my bank account number to do online shopping in my name.	190	2,03	1,258
I am scared that a criminal could use my credit card account number to do online shopping in my name.	190	2,03	1,230
I am frightened that somebody could do online shopping at my expense.	190	2,03	1,238
I am worried about an unauthorized person making online purchases using my personal data.	190	1,98	1,224
I am scared that when I have to give my credit card number to shop online that it could be misused.	190	2,09	1,326
I am scared that when I have to give my bank account number to shop online that it could be misused.	190	2,11	1,343
The thought that a stranger could gain access to my customer's account at an online store by using my personal data frightens me.	190	2,06	1,273
<i>Fear of reputational damage</i>			
I am frightened of somebody using my personal data on the Internet in order to run me down.	190	1,81	1,120
I am very worried that the unauthorized use of my personal data online could damage my reputation.	190	1,75	1,013
I am worried about my reputation being damaged due to the illegal use of my personal data online.	190	1,83	1,046
The thought that a stranger could damage my reputation by using my personal data online scares me.	190	1,83	1,085

price”). The response scale was a 5-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree). The coefficient of reliability (Cronbach's alpha) was 0.87, respectively. The descriptive statistics for the items of the *Perceived risk* are presented in Table 2.

Online purchase intention was measured on a three-item scale developed by Salisbury, Pearson, Pearson and Miller (2001) (e.g., “I would use the Internet for purchasing a product”). The response scale was a 5-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree). The coefficient of reliability (Cronbach's alpha) was 0.94, respectively. The descriptive statistics for the items of the *Online purchase intention* are presented in Table 3.

3.3 Data collection

Empirical research on fear of online identity theft, perceived risk and online purchase intention was performed by survey method. To obtain data, we designed an online questionnaire, which was sent via e-mail in winter 2017.

We have used convenience sampling, which is the most common (Etikan, Abubakar Musa, Sunusi Alkassim, 2016), where people from all over Slovenia were invited via e-mail and social media to participate in our survey. After conducting online research, primary data was controlled and edited. For processing and analysing data, we have used IBM SPSS Statistics 24 and Lisrel 8.80.

4 Results

Table 4 shows the number of respondents, means, standard deviations, minimums and maximums for researched constructs. According to the mean value, the respondents have more fear of financial losses ($M = 2.03$) than reputational damage ($M = 1.81$), although the scores show considerably low fear of online identity theft. The respondents do not perceive online shopping as risky ($M = 1.82$) and they are very keen toward online purchase intention ($M = 4.36$).

In continuation, we present a method to test the model by applying structural equation modelling (SEM), which is used for testing structural relations between constructs.

Table 2: Means and standard deviations for the items of Perceived risk

Item	n	M	SD
I am worried that the price online may be higher than in the mall (price).	190	1,64	0,948
I am worried that purchasing online may take me too much time, including choosing products from wide selection and delay in shipment (time loss).	190	1,58	0,915
I am worried that the commodity sold online is a fake, smuggled, or reprocessed product (quality).	190	1,94	1,171
I am worried that the products I bought online do not meet my expectations due to being unable to touch it or give it a trial (lack of good feel of product).	190	2,13	1,309
I am worried about after-sale services (after-sale service).	190	1,93	1,115
I am worried about the value of the product I received does not meet its price (value).	190	1,99	1,101
I am worried that online shopping does harm to my physical and psychological health (health).	190	1,47	0,695
I am worried that my private information will be leaked (privacy).	190	1,88	1,094

Table 3: Means and standard deviations for the items of Online purchase intention

Item	n	M	SD
I would use the Internet for purchasing a product.	190	4,32	0,853
Using the Internet for purchasing a product is something I would do.	190	4,40	0,815
I could see myself using the Internet to buy a product.	190	4,37	0,868

Table 4: Descriptive statistics for researched constructs

	n	M	SD	Min.	Max.
Fear of Financial Losses	190	2.03	1.26	1	5
Fear of Reputational Damage	190	1.81	1.07	1	5
Perceived Risk	190	1.82	1.04	1	5
Online Purchase Intention	190	4.36	0.85	1	5

That operation was made by building a model in Lisrel 8.80 software package, which is an analytical statistics program, which allows the testing of multiple structural relations at once (Prajogo & McDermott, 2005). It combines factor and regression analysis by which it tests the proposed model by which we can assess the significance of hypothesised cause-and-effect relations among the variables (Diamantopoulos & Siguaw, 2000). The standardized solutions and t-values for the hypotheses tested in the model are presented in Figure 1.

Standardised solution weights between the constructs representing fear of financial losses, fear of reputation-

al damage, perceived risk, and online purchase intention are presented in the model presented in Figure 1. We can therefore with the use of structural equation modelling confirm our hypothesised relations between the researched constructs as follows:

- H1: Fear of financial losses is positively related to perceived risk. (Standardized solution = -0.55, t-test = 6.86)
- H2: Fear of reputational damage is positively related to perceived risk. (Standardized solution = 0.36, t-test = 4.90)
- H3: Perceived risk is negatively related to online pur-

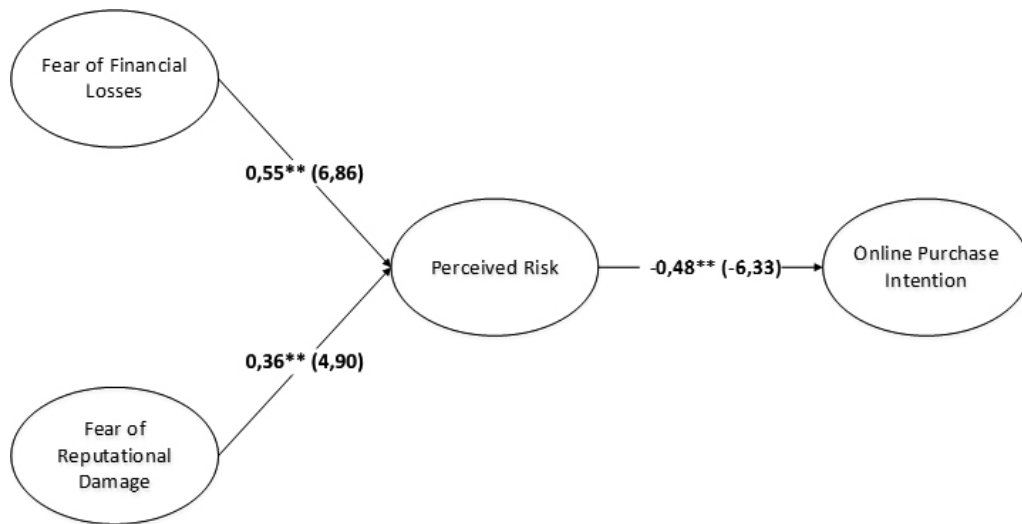


Figure 1: Conceptual model with the standardized solutions (and t-test) for the hypotheses

chase intention. (Standardized solution = -0.48, t-test = -6.33)

Based on the standardised solutions we found that the relations are as hypothesised and all of them are statistically significant. Table 5 presents model fit indices, reference values and model fit according to individual indices (the reference values are according to: Hooper, Coughlan & Mullen, 2008; Hu & Bentler, 1999; Kenny, 2014) for our researched model and present a very good model fit with a P-value of 0.0000. Model fit indices, as presented, confirm a good model fit.

5 Discussion and implications

Online purchases are increasing, but there are still doubts and restraints among potential customers. We have therefore explored perceptions of customers and potential customers on which opinions are based. Greater perception of risk on the part of consumers, acts as a deterrent to their purchase intentions (Masoud, 2013). With proposed hypotheses, which were based upon previous research and in-depth study of relevant literature, we have tested the relations between the fear of identity theft, perceived risk and online purchase intention.

The empirical contribution of our research is reflected in the conceptual model. The two constructs representing the fear of identity theft, the fear of financial losses and fear of reputational damage are positively and statistically significantly related to perceived risk, as hypothesised, which means that when they increase, so does the perceived risk. On the other hand, are the constructs of perceived risk and online purchase intention negatively and statistically significantly related, which means that lower perceptions of

risk increase online purchase intentions.

The limitation to the study comes from the fact, that the whole research was focused mostly on how the fear of identity theft (fear of financial losses and fear of reputational damage) relates to perceived risk and how that is related to online purchase intention, whereas other determinants were not considered. As mentioned, those are not the only determinants of online purchase intention, there are also other factors involved in the process. For further research, we suggest investigating the effects of the determinants omitted, or to put in other words, not included in our study.

The results of our analysis demonstrate the theoretically backed-up relations between the constructs included in the model. Apparently, the fear of identity theft (fear of financial losses and fear of reputational damage) increases the perceived risk, which decreases the online purchase intention. The theoretical contribution of this study is to the existing research of fear of identity theft, perception of risk and online purchase intention in the aspect of advancing previous research by empirically examining the relations between them. The practical contribution is in the presented results that deepen the understanding of online purchasing.

6 Conclusion

The research into online purchasing and what motivates and deters potential buyers is still developing, therefore we believe that further research is important for a better understanding as well the positive effects on which most of the research is currently focused, as well the negative ones of which there is much less research being conducted.

Knowing and understanding, what negatively effects

Table 5: Descriptive statistics for researched constructs

* Hooper, Coughlan & Mullen, 2008; Hu & Bentler, 1999; Kenny, 2014

Fit indices	Value for the model	Reference value*	Model fit according to individual indices*
χ^2/df	3.406	≤ 2 or ≤ 5	Good fit
Normed Fit Index (NFI)	0.954	≥ 0.90	Very good fit
Non-Normed Fit Index (NNFI)	0.962	≥ 0.95	Very good fit
Comparative Fit Index (CFI)	0.966	≥ 0.93	Very good fit
Incremental Fit Index (IFI)	0.967	≥ 0.95	Very good fit

online purchase intention is important for better understanding and developing e-commerce and definitely the fear of identity theft and the understanding of perceived risk are to be considered in this regard as we have found in our study. Our findings offer the potential to eliminate these negative effects, whether they are direct or indirect.

Based on the revised theory in the literature review chapter, we have not found previous research that investigated these constructs in this order, composed in a conceptual model. Constructs are mutually related and are intertwined in their effects and represent a clear cause and effect relation. These findings are important both for individuals, organizations and marketing experts, because they are to assist in the adequate adjustment in developing e-commerce.

Over time, peoples' perceptions of newer technologies and approaches to purchasing change, and therefore it is important to take into account lessons learned through research of purchasing behaviour and to implement them in practice, rather than just following established, but also outdated, practices.

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Vpliv strahu pred krajo identitete in zaznavo tveganja na namero nakupa prek spleta

Ozadje in namen: Spletna aktivnosti so del skoraj vsakega vidika vsakodnevnega življenja ljudi. Prav tako se vsako leto povečujejo spletni nakupi, zaradi česar je pomembno proučevati, kaj vpliva na namero nakupa prek spleta. Na namere nakupa prek spleta med drugim vplivata tudi strah pred krajo identitete in zaznavo tveganja.

Oblika/Metodologija/Pristop: Spletna raziskava je bila izvedena na vzorcu 190-ih udeležencih iz Slovenije. Povezave med konstrukti strahu pred finančno izgubo, strahu pred izgubo ugleda, zaznavo tveganja in namero nakupa prek spleta so bile proučevane.

Rezultati: Raziskava je pokazala, da so povezave med konstrukti strahu pred finančno izgubo, strahu pred izgubo ugleda in zaznavo tveganja pozitivne ter, da je povezava med konstruktom zaznave tveganja in namero nakupa prek spleta negativna. Vse povezave so bile statistično značilne.

Zaključek: Razumevanje vpliva strahu pred krajo identitete in zaznavo tveganja na namero nakupa prek spleta je lahko koristno za spletne prodajalce, saj lahko s temi ugotovitvami upravljajo ta strah in zaznavo tveganja za povečanje namere nakupa prek spleta in ustrezno obravnavajo tveganja. Spletni prodajalci morajo zato upoštevati nove ugotovitve s področja spletne prodaje. Če si spletna trgovina želi imeti uspešno prodajo, mora upoštevati tako želje uporabnikov kot njihove zadržke.

Ključne besede: e-trgovanje, strah pred krajo identitete, namera nakupa prek spleta, zaznava tveganja, SEM