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CONSUMER BEHAVIOR: EFFECT OF BRAND TRUST ON THE RELATIONSHIP
BETWEEN CONSUMERS' PERCEIVED RISK AND INTENTION TO BUY IN THE ONLINE
SHOPPING

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Abstract

The digital era disrupted many activities that have for centuries acted one way. With the introduction of internet business, a new paradigm of shopping experience and consumer behavior has emerged. As the online environment entails many possibilities for fraud, when engaging in online transactions, consumers are apprehensive to ascertain whether the online seller is trustworthy or not before the purchase. This study intends to test how two major types of online perceived risks, financial and privacy risks, make an impact upon the consumers' online intention to buy and, to test whether the level of brand trust influences this relationship – in the context of consumer electronic products in Portugal. This research employed an empirical study using a questionnaire method to verify the hypothesis. Data were obtained from 173 consumers with previous online shopping experience. Results of the study indicate there's a significant influence of perceived risk on Portuguese consumers' intention to buy electronic products online. Although the present study has proved that brand trust does not have a moderate effect in the relation between the risk perceived by consumers and the intention to buy online, there was a significant difference between online shoppers' perceived risk concerning different brands with different levels of trust. Further on, implications and limitations are discussed in this paper and, recommendations for future research are provided

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Introduction

The days when commercial activities such as the exchange of goods and services for money, between parties, only happened in a traditional way are gone. In the context of traditional shopping, consumers are heavily dependent on the information exchange from person to person, however, with the advent of the internet, a new paradigm of consumer behavior has emerged. Instead of being merely a passive recipient of marketing information (Schrank & Dubinsky, 2004), consumers have the afforded opportunity to be active users and co-producers of information through the utilization of computer technology. The result is intended to be a facilitated shopping experience. The e-commerce represents a huge potential market that evolves rapidly and steadily, and as technologies, always more sophisticated, are suddenly and rapidly affecting an experience of how consumers buy on the Internet.

The affirmation of the Internet and the growth of the e-commerce are undeniable facts. In 2016, global online sales amounted to \$1.9 trillion U.S. dollars and projections show a growth up to \$4.06 trillion U.S. dollars by 2020 (*in Statista, 2016*). Mobile access, the proliferation of social networks, advanced search engines and the convenience of digital applications are some of the benchmarks that are related to expanding online consumption. Consumers' journey has become easy and pain-free as they can buy at any time from virtually anywhere, avoiding, for example, having to dress up, drive to the traditional store, or to multiple stores, face crowds, worry about transportation and parking or wait at checkout points. All these benefits lead consumers to perceive that Internet buying is convenient and saves time. Previous research show in the fact convenience and time saving are among the top reasons to adopt business-to-consumer e-commerce (Zhilin Yang et al., 2013; Gurvinder and Chen, 2004; Brown, 2001; White and Manning, 2001).

However, the fact that cyber-attacks and breaches in high-profile security are reported with more frequency means that there's the risk that potential customers will be reluctant to engage in e-commerce because of fears concerning their own personal and financial information (Grazioli and Wang, 2001; Jarvenpaa et al., 2000).

As most of the actions involve risk, human's perceptions are the main deal behind the way a person behaves. Their choices, attitudes, intentions and behavior are triggered by their perception. Consumers always perceive a certain degree of uncertainty and risk when engaged in buying situations which affects their purchasing decision making. In fact, consumers perceive risk because they face potentially undesirable outcomes as consequences of their choices and buying goals (Bauer, 1960; Dowling and Staelin, 1994; Jarvenpaa et al., 2000). Cox and Rich (1964) and Jahankhani, (2009) state that the amount of risk perceived by a customer is a function of two factors, namely, the amount at stake (consequences) and the individuals feeling of subjective certainty of success or failure. Previous research has examined various type of perceived risk, such as financial risk, performance risk (also defined as time and convenience time by other scholars), physical risk, psychological risk, and social risk (Jacoby & Kaplan, 1972; Lutz & Reilly, 1973; Kyun & John, 2010; Schiffman & Kanuk, 2004). The risk is in the consumers' mind, it is perceived, but not necessarily real. In attempt to reduce the uncertainty and the risks associated with the purchase intention, potential customers collect information and tend to adopt several tactics such as brand loyalty, store image, word-of-mouth, past experience, money back guarantee, or salespeople's suggestions (Kim, 2001; Schrank & Dubinsky, 2004).

Consumer perceptions of risk and their trust beliefs about the potential for something to go wrong are considered amongst the most important psychological features influencing online behavior, which can prevent them from purchasing from an online store/ retailer. Opposed to the

traditional shopping, where products can be judged by its tangibility, in the online shopping, consumers cannot touch nor feel the product, making them uncertain about the quality of the merchandise. Besides, consumers are becoming more distrustful about the disclose of their personal, financial, or identity information and how secure is such data. The fear that personal information, such as name, personal identification number, credit card number might be stolen or voluntarily transmitted to third parties was found to be a significant barrier in adopting e-commerce (Miyazaho and Fernandez, 2001; Rudolph et al., 2004; Suki and Suki, 2007; Jahankhani, 2009).

Based on the risk reduction that a brand trust has in the buying decision in traditional in-store shopping, consumers might conceivably perceive less risk when purchasing products online when the brand name is familiar and they trust, either through a retailer or at the brand's own online store. Brand trust level is an effective attribute used by customers for forming product-related judgements about a product, in an environment where they cannot test the product by themselves (Li, Jiang & Wu, 2014). Che and He (2003) have found that the relationship between brand knowledge held in the mind of the consumer and the intent to purchase online is mediated widely by perceived risk. Important to mention that the brand trust tends to gain significance in the purchase decision, as consumer's lack of knowledge about a product category increases (Hong & Cho, 2011).

The present study aims to investigate the Portuguese consumer perceived risks associated with the intention to purchase consumer electronic products online and the impact of brand trust on perceived risk involved in the online shopping. This leads to the following problem formulation: *Does brand trust affect the relationship between online consumers' level of perceived risk and online intention to buy?* and *Is there difference between online consumers'*

level of perceived risk when purchasing a more trusted well-trusted brand versus a lesser trusted brand?

To address these questions, global research regarding online perceived risk was made in order to build and test several hypotheses, carefully verified through an SPSS of several surveys conducted to Portuguese online shoppers. Lastly, the results are discussed and the limitation and recommendations for future research were addressed.

Literature review

Consumers are influenced by the risks they perceive, whether the risk exists or not (Sfchiffman and Kanuk, 2004). Their perceptions of risk and their beliefs that something may not have the expected outcome are considered, among others, fundamental concerns that influence online behavior, acting as a deterrent to the consumer's decision-making process. Previous research in marketing has found that risk perceptions are negatively correlated with willingness to buy (Shimp and Bearden, 1982; and White and Truly, 1998, Garbarino and Strahilevitz, 2004). In his paper, "Consumer perceived risk: conceptualizations and models", Mitchell states that the consumer behavior is largely explained by perceived risk since "consumers are more often motivated to avoid mistakes than to maximize utility in purchasing". In other words, the perceived risk of the consumer is not only associated if the purchase will satisfy its needs, but also how and where it is acquired, that is, the risks that incurs in obtaining the product. The same way that the internet has increased the points of consumption, product availability and contact with the brands, also brought a considerable number of risks associated.

Many studies indicate that perceived risk has a negative influence on the e-commerce adoption (Salisbury et al. 2001, Joines et al Joines et al. 2003) and on the intention to buy online (Liang and Huang 1998; Liao and Cheung 2001; Vijayasarathy and Jones 2000). Therefore,

perceived risk is not only important to e-commerce adoption, but also affects consumers' online shopping behavior because of the uncertainties and the variety of difficulties involved in the entire online buying process. Some studies report that privacy and security concerns of consumers are the main barriers for the growth of e-commerce (Burke & Kovar, 2000; Miyazaki & Fernandez, 2000; Sheenan & Hoy, 2000; Forsythe and Shi 2003). These concerns increase the risk perception of consumers as many internet users avoid online shopping due to the fear of unauthorized acquisition of personal information and disclose to third parties or stolen credit card numbers and abuse of personal information. Extensive research has confirmed several issues related to online privacy security, indicating that privacy concern has a positive influence on perceived risk (e.g. Van Slyke, Shim, Johnson, & Jiang, 2006) and a negative influence on trust (Eastlick et al., 2006; Liu, Marchewka, Lu, & Yu, 2005; Van Dyke, Midha, & Nemati, 2007), on intention to buy online (Shapiro, 2001; Azavadar et al., 2001; Taylor, Davis, & Jillapalli, 2009; Liao, Liu, & Chen, 2011; Midha, 2012;).

The uncertainty and consequence that define perceived risk were first introduced in the marketing literature by (Bauer, 1960) and later extended to numerous definitions (Cox, 1967; Cunningham, 1967; Bettman, 1973; Stone & Winter, 1987; Mitchell, 1999). For example, Cox (1967) suggested that the total of risk perceived by the consumer is a function of the (1) amount at stake in the purchase decision, and (2) the individual's subjective feeling of certainty that the consequences will be unfavorable. The present study follows Bauer's (1960) perspective by acknowledging multiple dimensions of perceived risk associated with shopping. As far as it concerns, if business want to make an effective use of their resources on the attempt of reducing consumers' perceived risk, they need to identify the effects of different types of risks (Korgaonkar, 1982), as it will enable them to anticipate and manage online consumers' needs and

wants, thereby reducing their fears of purchase. A review of past research on consumer behavior shows that several types of perceived risk have been identified and applied, including financial risk, performance risk, physical risk, social risk, and psychological risk (Jacoby and Kaplan, 1972; Lutz and Reilly, 1974; Horton, 1976; Korgaonkar, 1982; Simpson and Lakner, 1993; Darley and Smith, 1995; Jarvenpaa and Todd, 1996). Financial risk is defined as the likelihood consumers feel about their potential monetary loss from choosing a product or brand (Horton, 1976). Performance risk is related to the possibility of the product malfunction and not performing as it was expected, failing to deliver the desired benefit (Shimp and Bearden, 1982; Horton, 1976). Physical risk refers to the probability of safety problems from using the product, especially those directly related to health and safety (Che and He, 2003). Psychological risk is the probability that the selected product will be inconsistent with the personal or consumers' self-image (Che and He, 2003; Jacoby and Kaplan, 1972). It also can be defined as the individual's disappointment in oneself in case of a poor product choice (Ueltschy, 2004). Finally, social risk is defined as the related perception that significant others are likely to have towards the purchased item (Peter and Tarpey, 1975; Jacoby and Kaplan, 1974).

Regarding the uncertainties in the online shopping process, it is expected that this shopping mode influences the consumers risk perceptions, and therefore, develops new types of perceived risks. A more recent study (Cases, 2002) has attempted to redefine perceived risks in the context of online shopping. It identifies eight types of risk, namely performance, time, financial, delivery, social, privacy, payment, and source, which of these eight, only three are equivalent to the traditional risks as identified by Peter and Tarpey (1975) Jacoby and Kaplan (1972). It can be assumed that consumers experience more uncertainties due to the difficulty of evaluating the product without its tangibility or to the security and privacy issues associated. The

chance of experiencing adverse consequences (e.g., security of payment, invasion of personal information and failure of product delivery) arises, thus leading to perceived risk.

Brand Trust as risk reducer

Brand trust can be defined as the “willingness of the consumer to rely on the ability of the brand to perform its stated function” (Chaudhuri & Holbrook). This willingness to rely on a brand comes from multiple dimensions which include brand image, advertising, familiarity, security, experience, and word of mouth (Alam & Yasin, 2010). Undoubtedly, electronic commerce transactions require online customer trust for customers to purchase an order online and even submit his or her financial information or other personal data in undertaking other financial transaction (Yazdanifard et al., 2011). Research shows that trust is deemed to foster the intention to buy from a provider (Jarvenpaa et al., 2000; McKnight., 2002; Konradt et al.,2002; Stewart, 2003; Bart el al., 2005; Schlosser et al., 2006), and, in addition is a main determinant for re-purchasing decisions of customers and establishing a long healthy customer-seller relationship (Santos & Fernandes, 2008). Thus, brand trust is an important factor to consider when measuring security perceptions and needs to be assessed by online shops and retailers for engaging customers into e-commerce purchase.

Arguably, brand trust can effectively reduce consumers’ uncertainty about different perceived risks in online shopping. However, most studies have focused exclusively on the factors affecting trust in online shopping such as seller’s reputation (Kim, M. and Ahn, J, 2007; Doney and Cannon,1997; Pavlou, 2002), perceived security risks (Gauzente, 2004; Belanger et al., 2002; Cheung and Lee, 2000; Kim, Xu, and Koh, 2004), product information (Grabner-Kräuter, S., 2002; Lee and Turban; 2001), or web site design (Kim, Xu, and Koh, 2004; Koufaris and Hampton-Sosa, 2004). Concerning online shopping, consumers clearly face fears

that are not present in the traditional shopping (such as financial and security problems related to their own personal, financial and identity information) and, to the researcher's knowledge, a study examining a behavioral consequence of trust in the consumers' online perceived risks is unknown. Whether brand trust has a risk reduction capacity in an online shopping context is where this study intends to fit into the general literature in the field. As such, the following hypothesis were derived and tested:

H1: Online Perceived Risk has a negative impact on the Online Intention to Buy of electronic products

H2: Brands with positive brand trust are not affected by Financial and Privacy Perceived Risks

H3: Consumers' Brand Trust has a moderating effect on the relationship between online Financial and Privacy Perceived Risks and Online Intention to Buy

Method

Besides the objective of assessing the relative influence of perceived risks on intention to buy online, the purpose of this study was to examine whether brand trust can reduce consumers' perceived risk when shopping online. The hypotheses were tested using an experiment in which the brand name was manipulated.

Consumer electronics was the general product category in the test because such products tend to present high levels of quality uncertainty, thus affording the possibility of high perceived risk, since they represent costly products and there is always the fear that they do not have the desired performance or the expected quality (Dawar & Parker, 1994).

To test the main hypothesis, the data collection was conducted through an online multi-item scale questionnaire to online shopping consumers in Portugal, which was measured the Portuguese consumers' perspective regarding online perceived risks, consumers' intention to buy online and electronic brand trust, previously selected and included in the survey. Questions were designed based on a 5-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). In accordance with the research model, the questionnaire comprised of the following sections: (1) online shopping experience; (2) intention to buy online; (3) perceived risk; (4) brand trust and the last section, (4) demographic information. The statistical techniques used in this research are regression and correlation methods in order to obtain the relationship between the independent and dependent variables.

Statistical Measures and Reliability

The study introduces Online Perceived Risk (PR), composed by two dimensions (Financial Perceived Risk and Privacy Perceived Risk), as the independent variables. The dimensions of the financial risk were measured using items employed in previous studies (Jacoby and Kaplan 1972; Burke and Kovar, 2000; Jarvenpaa et al., 1996; Shimp and Bearden 1982), being the scale constituted by three items. The measurement of the privacy risk was adopted from Cases (2002); Forsythe & Shi (2003) and Lim, (2003), being the scale also constituted by three items. Each subject was questioned about the possibility and importance of each risk that occur when online shopping. Reliability¹ of *PR* was confirmed using Cronbach's alpha, as result shown for that was *PR*, $\alpha = 0.908$

¹According to Hair, Black, Babin and Anderson (2010) Cronbach's Alpha indicates reliability when the value is above 0.6

The dependent variable, consumer's *intention to buy online (IBO)*, was measured based on a three item scale used by Jarvenpaa et al. (2000) and Chiou et al. (2005). All items were loaded into one dimension with a coefficient alpha (0.854), confirming its internal consistency and dimensionality.

The intended moderated variable, Brand Trust (M_T), was operationalized according to the dimensions proposed by Mayer et al. (1995) and adopted in the consumer-brand relationship studies of McKnight et al. (2002) and Bhattacharjee (2002), which are as follows: *ability* that represents “the group of skill, competencies, and characteristics that enable a party to have influence with some specific domain” (Mayer et al., 1995); *benevolence* that corresponds to the interest in the trustor's well-being of the trustee part and last, *integrity*, which is defined as “the trustors' perception that the trustee follows a set of principles that the trustor finds acceptable” (Mayer et al., 1995).

Each item of the scale² required respondents to answer on a 5point Likert Scale ranging from (*strongly disagree*) to 5 (*strongly agree*). The internal consistency reliability test was used to investigate the reliability of all the scale questions (53 questions). Cronbach's coefficient confirms the reliability of the survey ($\alpha = 0.858$).

Sample

From the demographic variables listed in Table 1, it is observed that from the 173 Portuguese that comprise the sample, 70.5% of them are male, and most of our respondents are young people with age between 18 to 25 years old (46.2%).

²The components of each scale can be consulted in more detail in the Appendix

Table 1Demographic profile of participants (n=173)

Variable		Frequency	Percentage
Gender	Male	122	70.5
	Female	51	29.5
Age	<18	0	
	18-25	80	46.2
	26-35	55	31.8
	36-45	27	15.6
	>45	11	6.4
Academic Degree	High School	14	8.1
	Technical Degree	14	8.1
	Bachelor Degree	73	42.2
	Master Degree	68	39.3
	MBA	3	1.7
	Phd	1	0.6

A sample composed mainly of employed persons (76.3%), the rest being students.

Regarding the payment method, 51% of the responds use credit card when making an online purchase. All the respondents have experience of online purchasing, as those who answered negatively about previous online shopping experience weren't considered for the purpose of the study and the questionnaire ended.

Results

To test for the existence of collinearity, a Pearson correlation analysis was conducted to examine the relationship between the categorical independent variables and the single dependent variable. First instance, was to assess the correlation between the online perceived risk (composed by the online financial perceived risk and by the online privacy perceived risk) and

the consumers' intention to buy online. Moreover, the correlation was tested between the customers' brand trust, of **Apple** and **Sony**, and the mentioned online perceived risk. Since the Pearson correlation cannot prove the casual relationship between two variables, as the test only determines whether the variables are related by a statically significant result, a regression analysis was generated to examine the existence of a model equation that describes the statistical relationship between the independent and the dependent variables.

A statistical analysis was conducted to measure and test the effect of the consumers' brand trust on the relationship between the independent variable *PR* and the dependent variable *IBO*. As proposed by Baron & Kenny (1986) in the article "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations" the moderating effect of consumers' brand trust was examined through hierarchical regression procedures described by Cohen and Cohen (1983). The authors emphasized that if one presumes "that the effect of the independent variable (*X*) on the dependent variable (*Y*) varies linearly or quadratically with respect to the moderator (*Z*), the product term variable approach should be used". Then, the moderator effects are "indicated by the significant effect of *XZ* while *X* and *Z* are controlled". The objective of the use of product term is to reflect an interaction where the effect of the *PR* is said to be a linear function to the customers' brand trust (*M_SY* or *M_AP*). In step one of the hierarchical regression, only the independent variables, Online Perceived Risk (*PR*) and Brand Trust (*M_SY* or *M_AP* consonant the brand analyzed), and the dependent variable, Intention to Buy Online (*IBO*) were entered. Then, in step two, the product term between the perceived risk and the overall customers' brand trust was applied and entered in the mode. Important to highlight that variables were first mean centered, and then multiplied, creating a centered product term (Jaccard et al., 1990). **Hypothesis**

1 examined the impact of Perceived Risk (*PR*) on the Intention to Buy Online (*IBO*). Correlation results (see Correlation Matrix Table 11 in Appendix) indicate that the independent variable *PR* ($r = 0.274, p < 0.001, N = 173$) is **negatively correlated** with *IBO*. The table below (Table 2) shows the R-square value, or the coefficient of determination, which gives us the adequacy of the model, by measuring the percentage of the response variable variation that is explained by a linear model. Here, the value of R-square is **.075**, meaning, the independent variable, *PR*, in the model can predict **7.5%** of the variance in the dependent variable (*IBO*).

Table 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.274 ^a	.075	.070	.79357

a. Predictors: (Constant), Mean Overall Perceived Risk

Although the model does not explain much of the variation of the dependent variable, it is significant. The table below (Table 3) shows the multiple line regression constant and the coefficient values³ and their significance. Here, in the regression analysis, and for model 1, the p-value for the regression coefficient, of *PR* is given by **.000**, which is lower than **0.05**, meaning, it is significant for the model.

³ All hypothesis was tested one-tailed for a α -level of 0.05 on the whole sample

Table 3Coefficients^a

Model		B	SE	β	t	Sig.
1	(Constant)	3.567	.289	.050	13.207	.000
	Mean Overall Perceived Risk	-.273	.073	-.274	-3.728	.000

a. Dependent Variable: Mean Intention to Buy Online

These findings are in the total direction from what was expected. Therefore, hypothesis 1 is supported.

Hypothesis 2 predicted that the more trusted a brand is, the lower the online consumers' perceived risk. Analyses were conducted separately for the level of the overall consumers' trust on **Apple** and **Sony** and, the mean scores of the overall trust reveal that respondents have more trust in Apple than in Sony when purchasing electronic products (3.914 [**Apple**] > 3.4306 [**Sony**]). Correlation results (see Correlation Matrix Table 11 in Appendix) indicate that only **Sony** possesses a **negative correlation** with PR ($r = 0.323, p < 0.000, N = 173$), as, on the other hand, **Apple** shows no significant correlation with the mentioned perceived risks.

The table below (Table 4) gives us the R-square value for both brands. For Sony, the coefficient of determination is **.105**, meaning, *PR* in the model can predict **10.5%** of the variance in Sony's overall trust (*M_SY*). Apple's coefficient of determination is .012, meaning, *PR* only accounts for 1.2% on the model of Apple's brand trust.

Table 4Model Summary^a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1 ^b	.323 ^a	.105	.099	.44255
2 ^c	.109	.012	.006	.59289

a. Predictors: (Constant), Mean Overall Perceived Risk

b. Dependent Variable: Mean Overall Trust Sony

c. Dependent Variable: Mean Overall Trust Apple

Although Sony presents a low R-square in the regression model, as from Table 5, can be observed that the p-value for the variable *PR* is given by **.000**, which is lower than **.05**, meaning, it is significant for the model. It can be inferred that there is a significant statistical relationship between *PR* and Sony's overall brand trust (*M_SY*). The same does not apply to Apple, since presents a p-value equal to **.153**, meaning, there is no evidence of statistical significance of *PR* on Apple's overall brand trust (*M_AP*).

Table 5Coefficients^a

Model		B	Std. Error	Beta	t	Sig.
1 ^a	(Constant)	4.136	.161		25.645	.000
	Mean Overall Perceived Risk	-.182	.041	-.323	-4.470	.000
2 ^b	(Constant)	3.612	.216		16.717	.000
	Mean Overall Perceived Risk	.078	.055	.109		.153

a. Dependent Variable: Mean Overall Trust Sony

b. Dependent Variable: Mean Overall Trust Apple

Therefore, Sony's trust is the only affected by the consumers' online risk perceptions and Apple. These findings support our suggested hypothesis and, therefore, hypothesis 2 is valid

Hypothesis 3 examined the moderating effect of consumers' brand trust on the relationship between the online perceived risks types (*PR* and *FR*) and the consumers' intention to buy. Analyses were conducted separately for **Apple** and **Sony** and, the effect, as previously mentioned, was examined by a moderated hierarchical multiple regression, as proposed by Baron and Kenny (1986). From the table below, for Sony's case, it has been verified that there is an insignificant small increase of the square multiple correlation value ($\Delta R^2 = .03$). The difference between the two R squares are not statistically significant, meaning, that in the model, the explained variance of *IBO* is not due to the additional predictor. In this regression, the interaction between the *PR* and *M_SY* variable is not statistically significant (**p-value = .460**), then *M_SY* is not a moderator variable, it is just an independent variable, and thus moderation is not supported.

Table 6

Sony's hierarchical regression analysis for predicting intention to buy (N=173)

Variable	B	SE	β	t	Sig.
<i>Step 1</i>					
Mean Perceived Risk centered	-.321	.077	-.323	-4.184	.000
Mean Sony Trust centered	-.264	.136	-.150	-1.941	.054
<i>Step 2</i>					
Mean Perceived Risk centered	-.289	.088	-.290	-3.279	.001*
Mean Sony Trust centered	.281	.138	.159	2.032	.044*
PRxSY centered	-.87	.118	-.065	-.741	.460

Note: For step 1, $R^2 = .95$, $p < .001$; For step 2, $\Delta R^2 = .03$, n.s,

Regarding Apple, the regression analyses from the table below, shows that there is an insignificant incremental in the squared multiple correlation ($\Delta R^2 = -.095$) when adding the centered product term to the mean (*PRxSY centered*). In this regression model, the interaction between *PR* and *M_AP* has no effect on the explained variance of *IBO*. The p-value of the

product term variable is **0.460**, therefore, not statistically significant. It can then be concluded that M_{AP} is not a moderator variable, it is just an independent variable, and thus moderation is not supported.

Table 7

Apple's hierarchical regression analysis for predicting intention to buy (N=173)

Variable	B	SE	β	t	Sig.
<i>Step 1</i>					
Mean Perceived Risk centered	-.268	.074	-.268	-3.631	.000*
Mean Apple Trust centered	-.065	.103	-.047	-.632	.528
<i>Step 2</i>					
Mean Perceived Risk centered	-.237	.075	-.239	-3.159	.002*
Mean Apple Trust centered	.113	.105	-.082	1.077	.283
PRxAP centered	-.231	.128	-.065	-1.812	.072

Note: For step 1, $R^2 = .77$, $p < .001$; For step 2, $\Delta R^2 = -.095$, n.s.

These findings are not in the total direction from what was expected. Therefore, hypothesis 3 is not considered valid.

Discussion

The primary objectives of this study were to investigate the relationship between the online perceived risk and the consumer's intention to buy and whether the level of brand trust affects this relationship. As research showed us, brand trust has a positive effect in the traditional buying decision, especially when consumers face uncertainty and risk are perceived as high, brand trust is an important cue that supports the purchasing decision (Caudhuri and Holbrook, 2001).

In this study, the first hypothesis was verified, as the consumers' online perceived risk, composed by perceived financial and privacy risk, was found to significantly impact the intention to buy, in accordance with several studies (Miyazaho and Fernandez, 2001; Rudolph et al., 2004; Suki and Suki, 2007; Jahankhani, 2009). In addition, this study confirmed that brands with different levels of consumers' trust (more trusted brand vs less trusted brand, or in this case, **Apple** vs **Sony**), were distinguished to be affected differently by the consumers perceived risk. If Apple's brand's trust showed not to be affected by online perceive risk, on the other hand, Sony's brand trust showed the opposite.

The test of the variable brand trust as a moderate variable of the relationship between perceived risk and intention to buy online was proven to have no significant effect. An explanation for such result is the two types of perceived risks (financial and privacy risk) used to build the overall perceived risk are more related to the online shopping environment rather than to the type of products or the brands associated with the sector. Another explanation can be the fact that the brand's trust assessment was constructed under three attributes that only modeled quantitatively the consumers perceived trustworthiness of a specific brand and not the attitudes towards the brand, such as the intention to buy online from the brand. An additional rational behind the results concerning the impact of brand trust can be related to the fact that respondents were more concerned about the online shopping risk instead of associating it with the brands that operate in the sector.

Thereafter, with respect to the conclusions of this study, brand's trust cannot be considered a moderator of the relationship between perceived risk and intention to buy in the online context.

In general, this research enhances the importance of marketing strategies to reduce perceived risk that arise and influence the online shopper. Since security in e-commerce is still a complex topic and the brand trust may not serve to decrease online shoppers perceive risk, and this topic will probably gain increased attention in the future, future research should emphasize the profoundness of the consumers' perceptions and include an awareness or other factors that customer trust to accomplish the objectives of online purchase

Limitations and Future recommendations

Several limitations concerning this study have been identified. First, the size of the sample is a limitation which reduces the power of the study and increases the margin of error. A bigger sample could give more meaningful and valid results, as would be more representative of the population and would allow comparisons across respondent's demographics characteristic could be performed and included in the study. There is also a demographic concentration in the sample, as most of the respondents are aged between 18-25 years old (46.2%), which can be representative of low income or online shopping experience and leading to bias study results. Thus, future research should consider a large variation in the demographics characteristics. Another limitation of this study is the fact that is concentrated, mainly, on product category instead off different product within the category, as consumers tend to have different levels of perceived risk regarding different product types when shopping online. Therefore, the effect of and the test of brand trust as a moderator between perceived risk and consumers' online intention to buy should be conducted in future research concerning different product types.

Additionally, researchers may consider the inclusion of more dimensions of perceived risk, such as performance, psychological, social risks and personal risk, to scrutinize whether they can influence risk perceived and consequent online shopping behavior of consumers

Regarding the brand trust topic, future studies should focus on exploring the antecedent's factors of online brand trust and construct a model that defines brand trust on the web, by established it through a combination of factors such as security, privacy, word of mouth, brand image, web experience, etc. Through a better online brand trust conceptualization and a better scale expansion, a clear investigation of the specific risks which consumers perceive when purchasing online from a particular brand can be carried out. To have the capacity to influence trust and turn it into purchasing intention, it is important that brand managers understand which aspects of marketing contribute to customer perceptions and customer trust.

Implications

From a theoretical perspective, this study shows the view of the online consumers' purchase intention, incorporating the effects of the perceived risks and the brands' trust. By providing a holistic picture of the antecedents of perceived risk and brand trust, the study intended to assess the impact of these factors on purchase intention. Thus, the study provides perhaps a comprehensive understanding to date of online risk-related factors that a consumer considers when shopping online and of the trust regarding the companies in the electronic product sector. In addition, prior research has not often properly tried to understand the relationship between trust and perceived risk and how they impact in combination the consumers' purchase intention

From a practical view, the results highlight that consumers' perceptions of privacy and security protection are strong forecasters of online risk. Online business managers should pay special attention to these factors and to secure their e-commerce platforms in order to increase online sales volume. Despite the numerous benefits, results show online shopping is still considered a risky deal. Therefore, it encourages managers and marketers involved in the process

to pay attention to the consumers' risk perception in the online shopping environment in order to adequate risk-reduction strategies.

The dimensions of perceived risk developed in this research are intended for managers to use when designing their e-commerce strategies to augment the consumer's purchasing decision. risk reduction need. Due to the consumers' financial and privacy risk considerations, online shops/ retailers should improve their payment and information security. Finally, the findings suggest that online business should focus their marketing strategies on the strengthening its online brand trust. As more trusted brands seem to not be affected with such concerns as the financial and perceived risk, the development of trustworthiness in online transactions is considerably affected by branding aspects, as they seem to be the main factors involved in minimizing the perceived risks involved with the web-vendors. This is due to the fact that trust is more important for online shopping environment than for the offline, since the higher perceived risk in using e-commerce.

References

- Baron RM, Kenny DA. 1986. The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* 51(6): 1173–1182.
- Bauer, R. A. (1960) Consumer behaviour as risk taking, in Cox, D. F. (ed.) (1967) *Risk Taking and Information Handling in Consumer Behavior*, Harvard University Press, Boston, MA, 23–33
- Belanger F, Hiller JS, Smith WJ. (2002). Trustworthiness in electronic commerce: the role of privacy, security, and site attributes. *Strategic Information Systems*. 245–270
- Bettman, J. R. (1973) Perceived risk and its components: A model and empirical test, *Journal of Marketing Research*, 184–190
- Burke, R. R. (1997) ‘Do you see what I see? The future of virtual shopping’, *Journal of the Academy of Marketing Science*, 352–360.
- Caudill, E. M. and Murphy, P. E. (2000) ‘Consumer online privacy: Legal and ethical issues’, *Journal of Public Policy & Marketing*, 19 (1), 7-19
- Chaudhuri, A. & Holbrook, M. B. (2001). The chain of effects from brand trust and brand affect to brand performance: The role of brand loyalty. *Journal of Marketing*, 65, 81-93.
- Cheung, C. and Lee, M. (2000). Trust in Internet shopping: A Proposed Model and Measurement Instrument, in Proceedings of the 2000 Americas Conference on Information Systems (AMCIS) (3—5th August 2000); 681–689
- Cheung, C. M. K. and Lee, M. K. O. (2001). ‘Trust in Internet Shopping: Instrument Development and Validation through Classical and Modern Approaches’, *Journal of Global Information Management*, 9(3): July- September 23-35.

- Clayton, G. E. (2000) 'Web shoppers seek goods and security', *Advertising Age*, 71 (52), 28–30
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression~correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, N J: Erlbaum
- Corbitt, B., Thanasankit, T. & Yi, H. (2003). Trust and e-commerce: a study of consumer perception. *Electronic Commerce Research and Applications*, 203-215.
- Cox, D. F. and Rich, S. V. (1964). Perceived risk and consumer decision-making: The case of telephone shopping', *Journal of Marketing Research*, 32–39.
- Cunningham, S. M. (1967) 'The major dimensions of perceived risk', in Cox, D. F. (ed.) (1967) *Risk Taking and Information Handling in Consumer Behavior*, Harvard University Press, Boston, MA, 82–108.
- Dawar, N. and Parker, P. (1994) 'Marketing universals: Consumers' use of brand name, price, physical appearance, and retailer reputation as signals of product quality', *Journal of Marketing*, 81–95.
- Delgado-Ballester, E. & Munuera-Aleman, J. L. (2001). Brand trust in the context of consumer loyalty. *European Journal of Marketing*, 35(11-12), 1238-1258.
- Delgado-Ballester, E., Munuera-Aleman, J. L. & Yagiie-Guillen, M. J. (2003) Development and validation of a brand trust scale. *International Journal of Market Research*, 45(1), 35-53
- Garbarino E, Strahilevitz M. 2004. Gender differences in the perceived risk of buying online and the effects of receiving a site recommendation. *Journal of Business Research* 57(7): 768–775.
- Ha, H.-Y. (2004). Factors influencing consumer perceptions of brand trust online. *Journal of Product & Brand Management*, 329-342.

- Ha, H.-Y. & Perks, H. (2005). Effects of consumer perceptions of brand experience on the web: Brand familiarity, satisfaction and brand trust. *Journal of Consumer Behaviour*, 438-452.
- Jacoby, J. and Kaplan, L. B. (1972) The components of perceived risk, Proceedings of the Third Annual Conference, *Association for Consumer Research*, 382–393
- Jarvenpaa SL, Tractinsky N, Vitale M. 2000. Consumer trust in an internet store *Information Technology and Management* ,45–71
- Kim, I. (2001) Investigation effect of consumers' perceived risk on purchase intention in internet shopping, Purdue University, West Lafayette, IN
- Kovar, S. E., Burke, K. G. and Kovar, B. R. (2000) 'Consumer responses to the CPA WEBTRUST assurance', *Journal of Information Systems*, 17–35.
- Lim, K.H., Sia, C.L., Lee, M.K.O. and Benbasat, I. (2001). How Do I Trust You Online, and If So, Will I Buy?: An Empirical Study on Designing Web Contents to Develop Online Trust, *Working Paper 2001*
- Lutz, R. J. and Reilly, P. J. (1973) An exploration of the effects of perceived social and performance risk on consumer information acquisition in Ward, S. and Wright, P. (eds.) *Advances in Consumer Research*, 1, Association for Consumer Research, Urbana, IL, 393–405
- Mayer. R. C., Davis, J.D. and Schoorman, F.D. (1995). 'An Integrative Model of Organisational Trust', *Academy of Management Review*, 709 –734.
- McKnight DH, Choudhury V, Kacmar, C. (2002). Developing and validating trust measures for e-commerce: an integrative typology. *Information Systems Research*, 334–359

- McKnight DH, Choudhury V, Kacmar C. 2002b. The impact of initial consumer trust on intentions to transact with a web site: a trust building model. *Journal of Strategic Information Systems*, 297–323
- Mitchell, V. W. (1999) Consumer perceived risk: Conceptualizations and models', *European Journal of Marketing*, 163–195
- Miyazaki, A. D. and Fernandez, A. (2000) 'Internet privacy and security: An examination of online retailer disclosures', *Journal of Public Policy & Marketing*, 54–61.
- Miyazaki, A. D. and Fernandez, A. (2001) Consumer perceptions of privacy and security risks for online shopping, *The Journal of Consumer Affairs*, 27–44.
- Rempel JK, Holmes JG, Zanna, MP. (1985). Trust in close relationships. *Journal of Personality and Social Psychology*, 95–112.
- Sheehan, K. B. and Hoy, M. G. (2000) Dimensions of privacy concern among online consumer', *Journal of Public Policy & Marketing*, 62–73
- Shimp, T. A. and Bearden, W. O. (1982). Warranty and other extrinsic cues effects on consumers' risk perceptions, *Journal of Consumer Research*, 38–46.
- Spence, H. E., Engel, J. F. and Blackwell, R. D. (1970) 'Perceived risk in mail-order and retail store buying', *Journal of Marketing Research*, 364–369
- The Statistics Portal. (2016). Online-Shopping and E-Commerce worldwide: Statistics & Facts. Accessed April 30. <https://www.statista.com/topics/871/online-shopping/>
- European Commission. 2016. "Fighting Tax Evasion: The European Union and the Principality of Monaco Initial New Tax Transparency Agreement." Accessed March 30. http://europa.eu/rapid/press-release_IP-16-381_en.htm.

Wang, Y.D., and Emurian, H.H. (2005). An Overview of Online Trust: Concepts, Elements, and Implications', *Computers in Human Behavior*, 105-125.

Appendix

Table 8

Intention to Buy Online Scale

	Operational variable (item in the questionnaire)
Intention to Buy Online (<i>IBO</i>)	I am positive towards purchasing electronics products online
	It is likely that I will purchase electronic products online in the near future (3months)
	I have the intention to purchase electronic products online

Source: Jarvenpaa et al. (2000)

Table 9:

Online Perceived Risk Scale

	Operational variable (item in the questionnaire)
Perceived Risk (<i>PR</i>)	
Financial Risk ^a	I feel that my credit card details/ payment details may be compromised and misused if I shop online
	I might get overcharged if I shop online as the retailer has my credit card info
	The chances that I incur in monetary loss are high if I try from an unfamiliar brand of electronic products when I shop online
Privacy Risk ^b	I feel that my personal information given for transaction to the online retailer may be comprimised to 3 rd parties
	I feel that my personal data is not kept confidential when buying online
	There's a high possibility of my private information being disclosed if I try from an unfamiliar brand of electronic products when shopping online

a. Source: Jacoby and Kaplan 1972; Burke and Kovar, 2000; Jarvenpaa et al., 1996

b. Source: Cases (2002); Forsythe & Shi (2003)

Table 10:

Brand Trust Scale^a

	Operational variable (item in the questionnaire)
Brand ^b Trust	
Ability	[Brand name]'s products make me feel safe I trust the quality of [Brand name]'s products With [Brand name] I obtain what I look in an electronic product Buying [Brand name]'s products is a guarantee and never disappoints me
Integrity	[Brand name] is sincere and honest with its customer [Brand name] expresses interest with its customer [Brand name] is willing to solve a problem I might have with a product I could rely on [Brand name] to compensate me in some way for the problem with any product
Benevolence	[Brand name] renews its products considering advances in research [Brand name] is always looking to improve its response to consumer needs

a. Source: McKnight et al. (2002) and Bhattacharjee (2002)

b. Apple vs Sony

Table 11Correlation Matrix

		Mean Intention to Buy	Mean Overall Perceived Risk	Mean Overall Trust Apple	Mean Overall Trust Sony			
Mean Intention to Buy	Pearson	1						
	Correlation							
	Sig. (2-tailed)							
	N					173		
Mean Overall Perceived Risk	Pearson	-.274**	1					
	Correlation							
	Sig. (2-tailed)					.000		
	N					173	173	
Mean Overall Trust Apple	Pearson	-.076	.109	1				
	Correlation							
	Sig. (2-tailed)					.319	.153	
	N					173	173	173
Mean Overall Trust Sony	Pearson	-.045	-.323**	.392**	1			
	Correlation							
	Sig. (2-tailed)					.554	.000	.000
	N					173	173	173

** . Correlation is significant at the 0.01 level (2-tailed).

Survey**1. How often do you shop online?**

- Never
- As little as possible
- Once a week
- More than once a week
- Once a month
- 2-3 times a month
- Once a year
- 2-3 times a year

2. How often have you bought electronics products online?

- Never
- Once and I would not do so again
- Once and I would consider doing so again
- 2-3 times per year
- 1 per month
- Every week
- At least half of the products I buy, I buy online

3. Regarding the previous products list, how well do you trust, in general, the following brands when buying consumer electronics? (Scale: very strong trust, strong trust, moderate trust, low trust, no trust)

- Samsung
- Sony
- Huawei
- Haier
- Apple

Further questions were rated using a 5-point Likerty Scale, ranging from 0 (strongly disagree) to 5 (Strongly agree)

4. Intention to Buy Online

- 4.1 I am positive towards purchasing electronic products online
- 4.2 It is likely that I will purchase electronic products online in the near future (3 months)
- 4.3 I have no intention to purchase electronic products online

5. Perceived Risk

5.1 Please, evaluate your perceived Online Financial Risk

- 5.1.1 I feel that my credit-card details/ payment details may be compromised and misused if I shop online
- 5.1.2 I might get overcharged if I shop online as the retailer has my credit-card info
- 5.1.3 The chances that I incur in monetary loss are **high** if I try from an unfamiliar brand of **electronic products** when online shopping

5.2 Please, evaluate your perceived Online Security Risk

- 5.2.1 I feel that my personal information given for transaction to the online retailer may be compromised to 3rd party
- 5.2.2 I feel that my personal data is not kept confidential when buying products online
- 5.2.3 There's a high possibility of my private information being disclosed if I try from an unfamiliar brand of **electronic products** when shopping online

6. Evaluate your Trust on the following brands (Samsung, Sony, Huawei, Apple)

6.1 Ability

- [Brand name]'s products make me feel safe
- I trust the quality of [Brand name]'s products
- With [Brand name] I obtain what I look in an electronic product
- Buying [Brand name]'s products is a guarantee and never disappoints me

6.2 Integrity

- [Brand name] is sincere and honest with its customers
- [Brand name] expresses interest with its customer
- [Brand name] is willing to solve a problem I might have with a product
- I could rely on [Brand name] to compensate me in some way for the problem with any product

6.3 Benevolence

- [Brand name] renews its products considering advances in research
- [Brand name] is always looking to improve its response to consumer needs

7. Age

- <18
- 18-25
- 26-35
- 36-45
- >45

8. Gender

- Male
- Female

9. Which payment method do you use most often when buying products online?

- Credit Card
- Debit Card
- Paypal
- Google Checkout
- Other (please specify)

10. Academic Degree

- Basic School
- High Degree
- Technical Degree
- Bachelor Degree
- Master Degree
- MBA
- Phd

11. Academic Degree

- Basic School
- High Degree
- Technical Degree
- Bachelor Degree
- Master Degree
- MBA
- Phd