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# The Effects of Perceived Risks on Food Purchase Intention: The Case Study of Online Shopping Channels during Covid-19 Pandemic in Vietnam

Cuong NGUYEN<sup>1</sup>, Doan TRAN<sup>2</sup>, Anh NGUYEN<sup>3</sup>, Nhan NGUYEN<sup>4</sup>

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## Abstract

**Purpose:** Purchasing food via online shopping channels is booming during Covid-19 Pandemic in Vietnam. However, the perceived risks of food bought via online shopping channels may discourage consumers. Hence, this study assesses the effects of perceived risks on food purchase intention via online shopping channels in Vietnam. **Research design, data and methodology:** This study applied the multiple regression analysis with 253 samples collected from consumers who frequently purchase food via online shopping channels in Vietnam. The questionnaire is provided to respondents via Google Form. The sample collection method is convenience sampling. Three hundred samples were collected, but 253 samples are used after filtering the responses with missing data. The Exploratory Factor Analysis (EFA) and regression analysis are used for data analysis on SPSS software version 20. **Results:** The results show that product risk, security risk, time risk, and fraud risk of the seller negatively affect the intention to buy food via online shopping channels in Vietnam. **Conclusions:** The study provides several implications and recommendations for food companies and online food sellers. Reducing customers' perceived risks online food makes customers more willing to buy food online during Covid-19 Pandemic. Limitations and suggestions for further research are also discussed.

**Keywords :** Perceived Risks, Food, Purchase Intention, Online Shopping Channels, Covid-19 Pandemic, Vietnam.

**JEL Classification Code:** M10, M31, C12, N35

## 1. Introduction

Online food distribution can save a lot of time and money for consumers. During the Covid-19 pandemic in Vietnam, when the government decided to implement social distancing, it is clear that the time when people are

advised to stay at home has led to an increase in online shopping habits, especially in the urban areas with a large population density as well as a significant demand for foods. Shopee, an online retailer, recorded that confectionery and home-cooked food only in Ho Chi Minh City increased threefold. In April 2020, demand for dairy products increased rapidly. E-commerce is currently developing rapidly during the Covid-19 epidemic in Vietnam. The data from The Map of E-commerce in Vietnam (2021) showed that the demand for online groceries increases while the need for the other categories drops. According to the report, traffic of online grocery websites increased by 13% in Q1, 2021. The growth rate remained constant from the end of 2020, when the social distancing measures were loosened. The movement of staple food shopping has increased significantly due to social distancing, but many other aspects. Currently, some food establishments and foods use additives that are not allowed or exceed the allowable limit. Foods are damaged

1 First Author and Corresponding Author. Academic Head, Marketing Department, Faculty of Business Administration, Industrial University of Ho Chi Minh City, Vietnam.

Email: [nguyenquoccuong@iuh.edu.vn](mailto:nguyenquoccuong@iuh.edu.vn)

2 Second Author, Faculty of Business Administration, Industrial University of Ho Chi Minh City, Vietnam,

Email: [trancongdoan0504@gmail.com](mailto:trancongdoan0504@gmail.com)

3. Third Author, Office of Science Management and International Affairs, Email: [Nguyenminhtuanh@iuh.edu.vn](mailto:Nguyenminhtuanh@iuh.edu.vn)

4. Fourth Author, Lecturer, FPT University, Vietnam.

Email: [Nhannt2@fpt.edu.vn](mailto:Nhannt2@fpt.edu.vn)

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or degraded due to unsafe storage conditions. In addition, most items advertised on social networks do not guarantee quality, origin, provenance and false advertising. These are the risks that most Vietnamese customers have to deal with. According to Li, Sha, Song, Yang, Zhao, Jiang, and Zhang (2020), risk perception is an essential factor affecting how individuals evaluate risk, make decisions and behave. The impact of risk perception on customer purchase behaviour has been widely studied; however, the association has been debated. Besides, Liang and Lim (2020) report that consumer preference for natural food, health consciousness, health risk, attitude towards organic food and trust in labelling was an essential factor for enhancing purchase intention to buy food. According to Ha, Shakur, and Do (2020), perception of food safety risk is formed through a complex process. Food incident information resulted in a lower level of institutional trust. Negative information about food safety heightened the risk perceived of common foods of hazards and indirectly increased the perception of food safety risk in general. Studies investigating food safety risk perception (FSRP) have substantially increased in recent years, mainly because of recent cases of food contamination. Most studies analyzed the effects of FSRP antecedents and their consequences but reported heterogeneous effects (Nardi, Teixeira, Ladeira, & Santini, 2020). Hence, this research aims to assess the impacts of perceived risks on food purchase intention via online distribution among Vietnamese consumers during the Covid-19 pandemic.

## **2. Literature Review and Hypothesis**

### **2.1. Perceived Risks**

Knight (1921) defined risk as the measurable of uncertainty. Willett (2016) stated that risk is the uncertainty of a loss, or risk is the possibility of a loss. Thus, it can be seen that the risk of an unfortunate event occurring is always associated with human activities and the living environment. Perceived risk has been reported in numerous empirical studies to be negatively associated with online shopping intention (Park, Leec, & Ahn, 2004; Faqih, 2011; Chang & Wu, 2012; Chung, Cho, & Kim, 2014). Besides, Nguyen and Do (2019) report that perceived risk have characteristics that create aspects that inhibit consumers' willingness to shop online shopping. Online shopping ways can also make customers feel uncertain about possible consequences.

### **2.2. Food Purchase Intention**

Ajzen (1991) state that human social behavior can best

be described as following along lines of more or less well-formulated plans. Beck and Ajzen (1991) stated that intention contains the factors that motivate and influence behaviour. It indicates the degree to which a person is willing to try and complete the behaviour. When people have a solid intention to engage in a behaviour, they are more likely to engage in that behaviour. Purchase intention refers to the customer's willingness to purchase, increase, and continue to use a product and shows the consumer's motivation to perform the behaviour (Nguyen, 2019). Madalli (2017) define food as any substance of plant or animal origin that contains essential nutrients such as carbohydrates, fats, proteins, vitamins, or minerals and is consumed by organisms to obtain energy for survival and maintenance.

### **2.3. Influences of Perceived Risks on Purchase Intention**

Masoud (2013) shows that financial risk, product risk, shipping risk, and information security risk negatively influence online shopping behaviour and intent to buy. The results also show that two other dimensions, perceived time risk and perceived social risk, do not influence online shopping. Almousa (2011) confirm that not all considered risk constructs have the same effect on the purchase intention for internet apparel. Notably, time and performance risks had the most significant effect, followed by privacy and social risks. Masoud (2013) suggest that product, financial, and non-delivery risks are dangerous risks and negatively affect online shoppers' attitudes. Convenience risk positively affects consumer attitudes, suggesting that online shoppers trust the online seller and have fewer troubles with the website. On the risk perception of gene-modified (GM) foods, consumers' positive attitude towards GM technology significantly negatively affects consumer-perceived risks. More information reaching consumers significantly reduces consumer-perceived risks of GM food only for the unacquainted group (Xu, Wu, & Luan, 2020). Bui and Kemp (2013) show that the independent variable product risk has the most significant influence on the dependent variable, and the independent variable that has the least influence on online shopping intention is the seller's fraud risk.

### **2.4. Hypothesis**

#### **2.4.1. Product Quality Risk and The Intent to Buy Food Online**

Product quality risk is unlike all other forms of shopping outside of stores. It is difficult to inspect physical products on the Internet. Consumers must rely on

somewhat limited information and images displayed on a computer screen (Jarvenpaa & Tractinsky, 1999). Product risk is the perception that a purchased product may not perform as expected (Kim, Ferrin, & Rao, 2008). The inability to touch, feel, inspect, or try a product before they buy is a primary concern when shopping online, and concerns increase perceptions of product or performance risk (Saprikis, 2010). The product quality risk is negatively related to shopping online (Hwang & Joung, 2005; Nguyen & Do, 2019). Besides, Perceived quality of product and intention behaviour positively affects Vietnamese consumers' food purchase decision and loyalty (Truong & Nguyen, 2020; Nguyen & Pham, 2021). The first hypothesis is stated as follow:

**H1:** The higher the product quality risk, the lower the intent to buy food online and vice versa.

#### **2.4.2. Financial Risk and The Intent to Buy Food Online**

On financial risk, consumers are concerned that the Internet still offers very little security regarding credit card use and personal information disclosure (Paul, 1996). Financial risk is the perception that a certain amount of money can be lost or is needed for a product to work correctly. In addition, it is defined as potential net loss and includes consumer uncertainty related to online credit card use, which is a significant barrier to buy online (Maignan & Lukas, 1997). Lee and Choi (2007) report that transaction risk significantly indirectly affected purchase intention through attitude. According to Klaus (2013), it reflects the financial risk associated with consumers' sense of desperation to pay more. Wang and Zhang (2020) also revealed that perceived risk and perceived cost negatively affect attitude and purchase intention. The second hypothesis is stated as follow:

**H2:** The higher the financial risk, the lower the intent to buy food online and vice versa.

#### **2.4.3. Delivery Risk and The Intent to Buy Food Online**

For delivery risks, Hwang and Joung (2005) report that delivery risk negatively impacts purchase intention. Online purchase may experience delivery loss related to lost or damaged products and shipping to the wrong location after buying (Dan, Taihai, & Ruiming, 2007). Product delivery risk had a significant indirect effect on purchase intention through attitude (Lee & Choi, 2007). Consumers are concerned that products may be damaged during handling and shipping or are not adequately packaged and handled during shipping (Claudia, 2012). Delivery risks are a significant factor that is influencing the intention to

repurchase in online distribution. Consumers tend to repurchase more if the perceived delivery is less for online distribution service (Khan, Liang, & Shahzad, 2015). The third hypothesis is stated as follow:

**H3:** The higher the delivery risk, the lower the intent to buy food online and vice versa.

#### **2.4.4. Information Security Risk and The Intent to Buy Food Online**

For information security risk, losing control of personal information (Featherman & Pavlou, 2003). Many scholars emphasize that website security and privacy must include confidentiality of information, the integrity of information, security of authentication, the efficiency of information technology, and protection of personal privacy, all of which are related to the characteristics of the website (Shin, 2010). Kamalul, Mohan, and Goh (2018) confirm a negative relationship between information security risk and online purchase intention. Do, Nguyen, and Nguyen (2019) and Tran (2020) suggest the negative effect of perceived security risk on online shopping. The fourth hypothesis is stated as follow:

**H4:** The higher the information security risk, the lower the intention to buy food online and vice versa.

#### **2.4.5. Time Risk and The Intent to Buy Food Online**

Time risk is the perceived convenience, comfort, time and effort involved in buying a product that does not meet the consumer's expectations (Kim, Kim, & Leong, 2005). Time risk in online shopping is described as time lost due to difficulties navigating the website, submitting the product order and waiting for the product delivery (Forsythe and Shi, 2003). Time risk can be considered high if it involves long-term time commitments for buy, use or disposal (AlGhamdi, Drew, & AlFaraj, 2011). Kamalu et al. (2018) report a negative relationship between time risk and online purchase intention. Ventre and Kolbe (2020) also confirm that time risk negatively impacts online purchase intention. Do (2021) confirm that time risk negatively impact purchase intention. The fifth hypothesis is stated as follow:

**H5:** The higher the time risk, the lower the intent to buy food online and vice versa.

#### **2.4.6. The Seller's Fraud Risk and The Intent to Buy Food Online**

Seller's fraud risk can raise buyer concerns about the reliability of online sellers, such as product information not reflecting actual quality, difficulty in finding a place to resolve disputes that arise when buying online. Sellers can

provide false promotional information, or sellers do not fulfil their customer service promises (McCorkle, 1990). D'Alessandro, Girardi, and Tiangsoongnern (2012) interpreted trust as a buyer's trust to purchase online, the buyers' expectations about the reliability and integrity of the seller's promises based on the assurances of online sellers. The buyer's failure to receive the products after paying in advance through the online payment system (Ho, See-To, & Chiu, 2013). Zulkarnain, Ahasanul and Selim (2015) report that significant positive relationships are also found between website trust and customer satisfaction in online food ordering services. Kendall, Kuznesof, Dean, Chan, Clark, Home, and Frewer (2019) argue that consumers perceive food fraud as a risk to food safety. Psomiadis (2021) suggest that the risk of food safety and fraud depends in part on whether the purchasing and quality control mechanisms are well-controlled or outsourced to the supplier. The last hypothesis in this study is stated as:

**H6:** The higher the seller's fraud risk, the lower the intent to buy food online and vice versa.

**2.5. Research Framework**

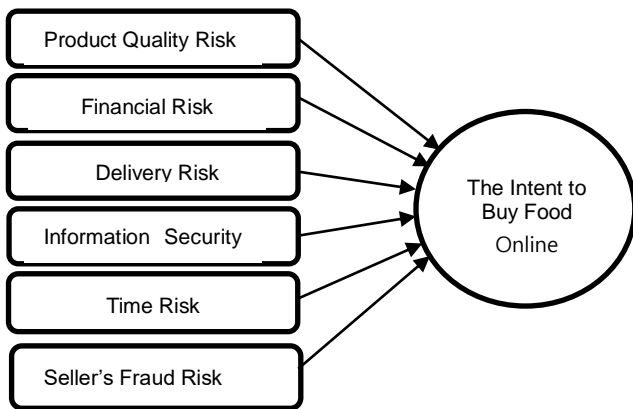


Figure 1: The proposed Research Framework

**3. Research Methodology**

The study was conducted in the quantitative method, which employed Exploratory factor analysis (EFA). This study uses the multivariable linear regression analysis method to determine the degree of influence of each factor on long-term employee commitment. And then, the author synthesizes and analyzes the data and uses the deductive-inductive method to draw conclusions and give appropriate managerial implications. The independent variables include Product Risk (SP), Financial Risk (TC), Shipping Risk

(VC), Information Security Risk (BM), Time Risk (TG), Seller's Fraud Risk (GL). The dependent variable is Food Purchase Intention. The questionnaire is based on short open-ended questions and a 5-point Likert scale. The first part is the screening and statistical questions. The next part concerns the risk factors that influence the intent to buy food online, measured with the Likert scale (1= Totally disagree, 2= Disagree, 3= No opinion, 4= Agree, 5= Totally agree). Data collection methods were implemented through online and face-to-face interviews. For the online interview method: the questionnaire is designed on the site Google Docs and then sent to respondents. For direct interview method: The questionnaire is sent directly to individuals to fill in the answers themselves and then collect them.

The sample size for factor analysis must be at least 4 to 5 times the observed variables (Hoang & Chu, 2005). According to the research model, there are 7 factors with 29 observed variables as the basis for deciding the number of survey panels, so the number of questionnaires to be collected is 145 samples. However, to ensure the validity and reliability of the data before entering the analysis, the author chose a sample size of more than 145 respondents. Therefore, the author decided to send 300 questionnaires (150 online samples via Google form, 150 printed samples) to respondents in Vietnam. The survey results were input into SPSS software, and Cronbach's alpha coefficient was used to test the rigour of the questions in the scale. Exploratory factor analysis EFA helped to group the observed variables into groups where the variables are closely related. In addition, the author uses the multivariable linear regression analysis method to determine the degree of influence of each factor on long-term employee commitment. And then, the author synthesizes and analyzes the data and uses the deductive-inductive method to draw conclusions and give appropriate managerial implications.

**4. Results**

**4.1. Reliability Test**

The correlation coefficient of the sum of the independent variables is greater than 0.3, so all variables are accepted. In particular, the variable YĐ5 was excluded because it had an overall correlation coefficient of 0.096 <0.3, so the author removed this variable because it was not reliable enough for the subsequent analysis. The remaining observed variables all meet the reliability standards, which ensures good quality. These variables will be included in the exploratory factor analysis (EFA).

**Table 1:** The reliability of the scale using Cronbach's Alpha

Variables	Number of items	Cronbach's alpha	The smallest correlation with the sum variable
Product Risk (SP)	4	0.713	0.468
Financial Risk (TC)	4	0.772	0.531
Shipping Risk (VC)	4	0.817	0.550
Information Security Risk (BM)	4	0.771	0.474
Time Risk (TG)	4	0.721	0.403
Seller's Fraud Risk (GL)	4	0.802	0.553
Intent to buy food online (YĐ)	5	0.655	0.096

## 4.2. Exploratory Factor Analysis

After the first exploratory factor analysis of EFA for independent and dependent variables of the Rotated Component Matrix, factors BM1, GL3, and YĐ5 were excluded because they did not converge. The results of the second analysis show that all observed variables Factor

Loading >0.5: satisfactory, which shows that the factor variable and the observed variable are closely related. The obtained results converge model has the best ability to explain and analyze. These factors ensure the requirements in the analysis of Multivariate Regression Analysis.

**Table 2:** Result of exploratory factor analysis (EFA)

Factor	KMO	Sig	Total variance extracted	Loading factor range
<b>Independent variables</b>	0.830	0.0	65.006	
SP				0.649 – 0.744
TC				0.642 – 0.801
VC				0.574 – 0.750
BM				0.616 – 0.778
TG				0.587 – 0.800
GL				0.640 – 0.850
<b>Dependent Variable</b>	0.694	0.0	55.673	
YĐ				0.661 – 0.816

## 4.3. Correlation Analysis and Multivariate Regression Analysis

The variance excess coefficients VIF of the variables all have values from 1.084 to 1.514, less than 10, showing that the regression model does not violate the hypothesis of multicollinearity (Hoang & Chu, 2008), the model is statistically significant. The sig coefficients of the variables product risk, information security risk, time risk, and seller's fraud risk are all <0.05, so these four independent variables are accepted. Of the 4 independent variables, product risk, information security risk, time risk, and seller's fraud risk, the beta coefficients <0 show that these

independent variables are negatively correlated with the dependent variable, intent to buy food online, because the author hypothesized that the greater the risks before, during, and after the online shopping process, the more the intent to buy food online decreases. In addition, the sig coefficient of the variables financial risk and delivery risk >0.05 is not statistically significant, so it is excluded. The relationship between the dependent variable and the independent variables is shown in the following multivariate regression equation: **YĐ = -0.190SP - 0.300 BM - 0.242TG - 0.347GL**

The results of hypothesis testing are described as below:

**Table 3:**Correlation Analysis and Multivariate Regression Analysis

	t	β	Sig.	VIF	Pearson
(Constant)	21.859	5.151	.000		
Product Risk (SP)	-4.037	-.190	.000	1.206	-.374**, sig.= 0.000
Financial Risk (TC)	-2.215	-.116	.068	1.476	-.441**, sig.= 0.000
Delivery Risk (VC)	1.009	.063	.314	1.124	-.491**, sig.= 0.000
Information Security risk (BM)	-5.501	-.300	.000	1.611	-.551**, sig.= 0.000
Time risk (TG)	-5.403	-.242	.000	1.084	-.372**, sig.= 0.000
Seller's Fraud risk (GL)	-6.565	-.347	.000	1.514	-.575**, sig.= 0.000

**Table 4:** Results of Hypothesis Confirmation.

Hypothesis Statements	Outcomes
H1 The higher the product quality risk, the lower the intent to buy food online and vice versa.	confirmed
H2: The higher the financial risk, the lower the intention to buy food online and vice versa.	not confirmed
H3: The higher the delivery risk, the lower the intention to buy food online and vice versa.	not confirmed
H4: The higher the information security risk, the lower the intention to buy food online and vice versa.	confirmed
H5: The higher the time risk, the lower the intent to buy food online and vice versa.	confirmed
H6: The higher the seller's fraud risk, the lower the intent to buy food online and vice versa.	confirmed

## 5. Conclusion and Managerial Implications

This study has the main objective to assesses the effects of perceived risks on food purchase intention via online distribution in Vietnam. 4 factors negatively impact the food purchase intention via online distribution among Vietnamese consumers. Notably, financial risks and delivery risk are not proven to have a negative impact on the food purchase intention via online distribution in Vietnam. However, Choi, and Mai (2018) suggest that Vietnamese chose COD (cash on delivery) as their first choice in e-commerce transaction; therefore, financial risk and delivery risk are not the main concerns of Vietnamese consumers when they purchase food online distribution Covid-19 pandemics.

### 5.1. Managerial Implications from Seller's Fraud Risk

First, in terms of the results of the risk factors that influence the intent to buy food online, the Seller's Fraud Risk" has the most significant influence ( $\beta = -0.347$ ). This finding is consistent with many previous studies (D'Alessandro et al., 2012; Ho et al., 2013; Zulkarnain et al., 2015; Kendall et al., 2019). The results show that online consumers in general and in particular do not trust the credibility and honesty of companies or stores doing business on online platforms. Companies, agents or e-commerce stores for daily food-related products need to build consumer trust. To build the trust of online shoppers in general and online food in particular, online businesses and individuals need to develop a set of policies and strategies. The proper strategy and direction as the first are that before posting for sale or advertising products on the website, it is necessary to register or notify the Ministry of Industry and Trade (MOIT) of Vietnam to obtain a certification logo that increases the food brand's prestige and store. Second, complete information must be provided (name of the registered store, name of the representative, telephone number, address of the store, e-mail address, and invoice documents proving the origin of the food products. Third, it is necessary to have a clear product return policy that is publicly transparent and presented on the website to see it easily. Fourth, businesses need to be honest in their advertising, not false or exaggerate the truth, and images need to be transparent (complete information about the manufacturer - expiry date, instructions for use, ingredients, name and address of the food manufacturer. If companies meet these criteria, they will increase consumers' intent to buy food via online distribution in Vietnam.

## 5.2. Managerial Implications from Information Security Risks

The information security risk factor has the second-largest influence ( $\beta = -0.300$ ) on the intent to buy food online. This finding is consistent with many previous studies (Shin, 2010; Kamalu et al., 2018; Do et al., 2019; Tran, 2020). The results show that consumers still do not have complete confidence in e-commerce transactions as they are often asked to provide their full name, phone number, email address and home address in order to receive the invoice or if they want the seller to deliver the products to their doorstep and this often makes consumers hesitant to participate in an e-commerce transaction. Therefore, building consumer trust is necessary to be transparent and fair in their behaviour and activities. The website must display complete information about companies, stores. In addition, it is necessary to set up privacy through the customer's account to determine what information must be kept confidential, what information they want to allow or not, and help them view the information security process to ensure that information is not leaked.

On the other hand, companies, agents or individuals should use security forms such as SSL (Secure Socket Layer) or SET (Secure Electronic Transaction) to guarantee security information to clients. To do these things well, e-commerce companies need to constantly improve the management capacity of their executives and the professional skills of their employees. Thus, if the risk of information security decreases, the intent to buy food online in general or in particular will increase.

## 5.3. Managerial Implication from Time Risk

The information security risk factor has the third-largest influence ( $\beta = -0.242$ ) on the intent to buy food online. The finding is consistent with the previous research (Kim et al., 2005; AlGhamdi et al., 2011; Kamalu et al., 2018; Ventre & Kolbe, 2020; Do, 2021). The results show that online food shoppers generally perceive time risk for participating in e-commerce. Since the first form of online shopping was introduced in 1991, no one can deny that the most prominent benefit is the time saving for commuting to a shopping mall or the local market, offer the best deals and discounts, and even deliver to the doorstep. However, in Vietnam, with an increasing number of people participating in online shopping (44.8 million people out of 96 million people have participated in online shopping), while the infrastructure and technical system of enterprises, e-commerce stores have not yet been completed and innovated, so the reception and processing of hundreds and thousands of orders every day delayed, discontinued. It

affects customers' online shopping experience because they have to wait for a long time for the seller to confirm the order. Moreover, the customers also have to wait for extra time for the shipping/delivery. Therefore, to prevent the customers from wasting much time and improve the shopping experience, especially in online food, the companies need to constantly innovate and update the modern and advanced technology and software. The most advanced technology is to fully automate the receipt and processing of orders to improve the fastest customer response time. Companies and stores should work with reputable, experienced shipping partners and have a strong, enthusiastic, trained and well-qualified delivery team to serve customers most attentive. On the other hand, if there are promotions, discounts, sellers must have software to remind customers and messages at appropriate time frames automatically. If companies, online food stores do these things, it will reduce the risk of time and help to increase the intention to buy food online.

## 5.4. Managerial Implication from Product Risk

The product risk factor has the fourth-largest influence ( $\beta = -0.190$ ) on buying food via online distribution in Vietnam. The finding is consistent with other studies (Hwang & Joung, 2005; Nguyen & Do, 2019; Heo, 2020; Truong & Nguyen, 2020; Nguyen & Pham, 2021). The results show that consumers' perception of product quality risk is relatively high. The characteristic of online shopping is that the buyer cannot touch and check the condition of the actual product. Especially in the food industry, it is difficult for buyers to accurately assess the quality of products (freshness and cleanliness for fresh and unprocessed food). Apart from not being able to touch and observe the product's condition, consumers also have many difficulties comparing similar products in other online stores, as most consumers only view pictures that may not be from the seller. So, in order to build consumer confidence in the quality of products in general or in particular, companies, agents, stores, organizations and individuals must first choose e-commerce stores or major selling sites like Tiki, Shopee, Lazada. Consumers choose product sources or manufacturers that must be reputable, ensure a commitment to product quality, or have food safety and sanitation certificates. In addition, companies or individuals doing business online must provide much information about the product, which must be announced accurately and clearly on the media. It includes many actual pictures and videos to make instruction for use and try product experience and set up a public comment and feedback function for customers who have bought the product to create more certainty about the product's effectiveness and make customers feel better when buying.

If the seller solves these problems well, it will gain customers' trust and increase their intent to buy food online in the future.

## 6. Limitation and Further Research

In addition to the factors that the author recommends: product risk, financial risk, shipping risk, information security risk, time risk, seller's fraud risk, there are many other factors that the previous research did not consider, such as online payment risk, social risk, psychological risk, convenience risk. There could be other factors that have not been considered. Therefore, the following research direction should consider more factors in combination with geographical, social and cultural differences to consider if more factors can be discovered. Another limitation is that the study was conducted during the Covid-19 pandemic in Vietnam, so consumers may not feel comfortable answering the offline questionnaire. As a result, the fear to close contact and anxiety may cause some bias in the data collected. This study only focuses on Vietnamese consumers with a convenient sampling method. As a result, the representativeness of the sample could be limited. The generalizability of the study will be higher if it is conducted in all provinces of the country. Therefore, the following research direction can expand the research sample for different groups of subjects to be more representative.

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