

## *Original Paper*

# Factors Affecting Consumers' Intention in Vietnam-China Cross-border E-commerce: An Empirical Study in Hanoi, Vietnam

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### **Abstract**

*In the era of innovative technologies, the physical border is no longer a concern in exchanging goods thanks to the widespread use of internet connections. On this basis, the study explores the determinants that impact cross-border online consumers' purchase intentions in Hanoi, Vietnam. As fundamental ideas, the Theory of Planned Behavior (TPB) and the Technology Acceptance Model (TAM) are integrated with the influence of the Regional Comprehensive Economic Partnership (RCEP). The examined factors consist of Consumer Attitude, Subjective Norms, Perceived Behavioral Control, Perceived Usefulness, Perceived Ease of Use, Perceived Risk, Trust, and RCEP. The research was conducted on a survey questionnaire of 253 online shoppers in Hanoi who have experienced cross-border purchasing. The data was processed using several statistical methods, namely descriptive statistics, exploratory factor analysis (EFA), correlation analysis, and regression analysis. The analysis reveals that Consumer Attitude, Subjective Norms, Perceived Behavioral Control, Perceived Usefulness, Perceived Ease of Use, and Trust have a positive influence on the consumer's intention to cross-border e-commerce (CBEC), while perceived risk and RCEP do not exert any force on the intention. Among these variables, Risk perception and trust have been demonstrated to have the most significant impact on online purchase intention. The outcomes of the study indicate that online retailers or intermediaries adopt a third-party payment processor and publish policies to protect consumers' private information. It is also suggested that the government should educate the public on the benefits of RCEP, implement the relevant policies, and provide guidance for the sellers to follow to utilize the advantages of RCEP.*

### **Keywords**

*Vietnam, China, Cross-border e-commerce, Purchase intention, Theory of Planned Behavior,*

*Technology Acceptance Model, Attitude, Subjective Norms, Perceived Behavioral Control, Perceived Usefulness, Perceived Ease of Use, Trust, Perceived Risks, RCEP*

## **1. Introduction**

With the fast expansion of the contemporary economy, cross-border e-commerce has emerged as a new form of commerce in global economic activity. It is capable of efficiently resolving the problem of resource scarcity in different nations and optimizing and rationalizing resource allocation in various countries. The continued growth and popularization of cross-border e-commerce affects the economic model of a nation. Cross-border e-commerce refers to international commercial activity conducted by various trading entities using an electronic commerce platform to conduct transactions, payments, and settlements, as well as cross-border logistics to deliver products and complete transactions. It is self-evident that cross-border e-commerce is thriving. As the foundation of global commerce, e-business has strategic significance. To put it another way, technology breaks down borders and enables international commerce, but it also affects the businesses and customers involved. For businesses, e-commerce has substantially expanded their ability to reach the worldwide market. It has opened the door to the best deployment of multilateral resources and the reciprocal advantages enjoyed by businesses around the globe. Customers benefit from the ease with which they may buy goods from across the nations, as well as reduced search expenses and the ability to compare pricing (Gomez et al., 2014). Furthermore, as suggested in McKinsey's 2019 report, e-commerce is the driving factor behind the next industrial revolution. Several developing nations are turning to this method as way of eradicating poverty. In countries like Vietnam, e-commerce is becoming the primary source of economic activity, with many businesses and regular citizens finding jobs in the e-commerce industry. Vietnam and China have had a long economic relationship throughout the history of both countries. Over the past 25 years since the two countries normalized diplomatic relations, the total trade turnover of Vietnam with China has increased by more than 2,220 times, from over 30 million USD in 1991 to 66.6 billion USD in 2015. Especially from 2001 to now, Vietnam-China trade relations have developed vigorously and continuously; the average import-export growth rate reached 27.4%/year, of which imports increased by an average of 32.10%/year and exports increased by 21.20% /year. In recent years, the economic and trade collaboration between Vietnam and China has always thrived. According to the statistics of Chinese Customs, the two-way trade turnover reached 147.8 billion USD in 2018, an increase of 21.2%, China has been the largest business partner of Vietnam for 15 consecutive years, and Vietnam is also the most substantial partner of China among ASEAN countries and, 8th largest globally. According to Vietnam Customs, in the last two years, bilateral trade between Vietnam and China has approached 100 billion USD. Particularly in the first 5 months of 2020, in the context of the outbreak of COVID-19 and complicated developments, the two countries promptly exchanged many measures to maintain trade as well as implement initiatives to promote business exchanges on the online market, bringing the total bilateral trade turnover to US \$44.35 billion, up nearly 2% over the same period in

2019. Of which, Vietnam's export turnover to China reached US \$15,975 billion, up 17.4%, and Vietnam's import turnover from this market reached 28,375 billion USD, down more than 5%. The increase in size and volume of trade between the two countries has created boundless business opportunities for the entrepreneurs of China and Vietnam. It calls out an urgent demand for trade information exchange and low-cost transactions. Cross-border e-commerce has satisfied those requirements to become a powerful tool to facilitate trade between two countries.

In terms of creating a favorable environment for e-commerce between China and Vietnam, the Ministry of trade and economy in China and Vietnam government have cooperated to build a network of platforms to facilitate enterprises and companies who are interested in transboundary e-business ([www.chinavietnam.gov.cn](http://www.chinavietnam.gov.cn)), China Vietnam Science and technology trade network ([www.sinoviet.com](http://www.sinoviet.com)), China Vietnam logistics network established by Chinese and Vietnamese enterprises ([www.cnvnlo.com](http://www.cnvnlo.com)), China Vietnam Business Center ([www.china-vn.com](http://www.china-vn.com)), China Vietnam agricultural means of production ([www.Cv-nz.com](http://www.Cv-nz.com)), China Vietnam Machinery Network, China Vietnam mining network and other websites. On June 3, 2009, the world's largest electricity Alibaba e-commerce group and Hanoi OSB, a Vietnam technology investment company, released cooperation news in Hanoi, OSB company became Alibaba's first agent in Vietnam. Following this acquisition, two out of the five most prominent online shopping platforms in Vietnam were merged or bought by Chinese e-commerce giants; particularly Alibaba became the new owner of Lazada with an initial \$1billion investment in 2016; also in August 2018, the e-newspaper vnExpress reported that Lazada Vietnam put Chinese people in control of the company. Mr. Zhang YiXing replaced Mr. Alexandre Joel David Sylvain Dardy (French) as General Director of Lazada Vietnam. On the other hand, it is reported by DealStreetAsia that China's second-largest e-commerce corporation, JD.com acquired a 22% stake from Tiki for an undisclosed amount (\$44 million in rumor) in 2018. Additionally, the rising star in Vietnam's e-commerce market, Shopee of Singapore Sea Group, has Tencent as the most potent stakeholder with a 39.7% stake. To prepare for the long-term war, Shopee's parent company - SEA Group, has "poured" US \$ 50 million into Shopee Vietnam. It is easily seen that the three largest e-commerce platforms, Shopee, Lazada, and Tiki, are gradually turning the e-commerce market into a private "playground" for Chinese enterprises. As a result, Chinese companies now have better access to stores with the tag "International" on those online shopping platforms.

However, it is noticeable that studies and research have neglected the most important factors when approaching the potential of cross-border e-commerce between Vietnam and China. The study, hence, aims at exploring the determinants that lead to the purchase intention of Vietnamese consumers when participating in the transboundary online trade. Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM) have been used as practical tools to measure the factors influencing the buying tendency (Ha et al., 2020, Han et al., 2018). Based on these theories, the study proposes affecting factors such as Attitude, Subjective Norms, Perceived Behavioral Control, Perceived Usefulness, and Perceived Ease of Use with three additional factors: Trust, Perceived Risks, and RCEP.

## 2. Literature Review and Hypothesis

### 2.1 Purchase Intention

Purchasing intention is one of two elements that influence customers' shopping behavior (Blackwell et al., 2001). It is a criterion for determining the probability of future conduct (Blackwell et al., 2001). Ajzen (1991) asserts that intention is one of the aspects that drives an individual to do an activity. By the same token, according to Davis et al. (1989), the intention is the possibility that a person will engage in a specific behavior in the future. In the interim, Akbar et al. (2014) stated that intentions are described as the consumer's explicit reason for carrying out an activity or sequence of actions. In recent years, there have been many research works that determine consumer behavior in the fields of information technology, marketing, and e-commerce with proven theories and experiments in many parts of the world. Thereby, the author, in turn, re-studied some popular models, including the theory of risk perception (TPR) of Bauer, R.A. (1960), Ajzen and Fishbein's theory of rational action (TRA) (1975), Ajzen and Fishbein's theory of planned purchase behavior (TPB) (1975), and Technology Acceptance Model (TAM) of Ajzen and Fishbein (1960), and Davis and Arbor (1989) and two development models of the above theories are the combined model of TAM and TPB proposed by Taylor and Todd (1995).

### 2.2 Model Application

Ajzen and Fishbein (1975) invented the theory of Reasoned Action in the late 60s of the 20th century and revised and expanded in the 70s. According to TRA, the behavioral decision is the most crucial predictor of consumer behavior. Behavioral decisions are influenced by two factors, namely attitudes and subjective norms, in which attitudes towards a decision are the expression of individual factors that express consumers' positive or negative beliefs about the product. In contrast, subjective norms represent a person's judgment of whether or not the majority of critical people in his or her life believe he or she should or should not engage in certain conduct (Fisbein & Ajzen, 1975). Nevertheless, the most significant limitation of this theory comes from the assumption that behavior is under the control of the will, which is the theory applies only to premeditated conscious behavior. Unreasonable behavioral decisions, habitual actions, or actual behaviors considered unconscious cannot be explained by this theory (Ajzen & Fishbein, 1975). Due to the limitations of the rational action theory (TRA) model, Ajzen and Fishbein (1975) propose a theoretical model of planned behavior on the basis of developing the theory of rational action with the assumption that a behavior can be predicted or explained by decisions to perform that behavior. Decisions are assumed to include behavior controls that influence behavior and are defined as the degree of effort with which people attempt to engage in that behavior (Ajzen & Fishbein, 1975). Planned behavior argues that behavioral tendencies are a function of attitudes and subjective norms and adds perception of behavioral control as a factor defining the decisions.

#### 2.2.1 Attitude

An individual's attitude toward an activity is described as his or her favorable or unfavorable

sentiments towards engaging in the targeted conduct (Fisbein & Ajzen, 1975). The TPB presents a compelling argument for investigating such premises, as well as a methodology for determining if attitudes are really connected to the intents behind actual conduct (Han et al., 2018). Numerous other investigations have shown evidence of this connection (Ha et al., 2020; Lin, 2007; Chen, 2017). Hence, the study introduces the hypothesis.

**H1: Attitude proposes a positive influence on the intention to buy Chinese commodities online.**

### 2.2.2 Subjective Norms

When it comes to the usage of online purchasing, subjective norms represent consumer judgments based on the impact of the referent group, including friends and coworkers (Lin, 2007). Jamil and Mat (2011) discovered that subjective norms had a tremendous impact on online purchase intention but did not perform an extraordinary impact on actual online purchases. The statement indicates that family, friends, and the media barely have a negligible effect on virtual shopping. However, after perceived behavioral control, the subjective norm was the second most crucial factor influencing a person's desire to buy online (Orapin, 2009). Third-party (subjective norm) recommendations, according to He et al. (2008), had a considerable influence on customer purchase intentions. Additionally, the subjective norm is expected to have a beneficial impact on the likelihood that individuals will participate in the targeted behavior. To put it another way, the notion that cross-border online buying is essential to critical referents and the desire to follow the opinions of essential others should impact the desire to make international online purchases (Han et al., 2018). Therefore, consumers' behavioral intentions to buy from overseas websites should be affected by their ideas about how their circle of influence accepts cross-border online purchasing (Han et al., 2018). Consequently, the research recommends the following hypothesis.

**H2: Subjective norms have a positive impact on consumer's intention to buy Chinese goods online**

### 2.2.3 Perceived Behavior Control

A person's perspective of whether or not he or she has the required resources or chances to carry out an activity determines the degree of Perceived Behavior Control (Ajzen & Madden, 1986). Internal and external elements have a role in perceived behavior control's development. An individual's level of self-efficacy, or faith in one's own abilities, is one of the most critical internal aspects to consider (Bandura, 1986). An individual's ability to carry out behavior is limited by external circumstances, such as the amount of money, the amount of time, or the technology necessary to carry it out. In the TPB model, behavioral intentions are defined as motivating elements that explain whether or not a person's purpose to conduct a certain activity determines whether or not that individual actually does it (Ajzen, 1991). To put it another way, the strongest predictor of behavior is an individual's desire to engage in a specific action. Several studies have also shown that intention and behavior are linked in a favorable way (Taylor & Todd, 1995a, 1995b). As a result of this, cross-border online buying intentions are favorably influenced by customers' perceptions of external barriers and internal facilitation factors

(Han et al., 2018). The below hypothesis is hence introduced.

**H3: Perceived behavior control positively affects the intention to purchase goods from China online.**

#### 2.2.4 Perceived Usefulness and Perceived Ease of Use

To determine whether or not people adopt new information technologies, Davis (1989) utilized the theory of reasoned action (TRA) to develop the technology acceptance model. Initially, the proposed technology acceptance model was created as a way to describe the elements that are commonly accepted by computers. People's actions while using information systems are said to be influenced by their intentions, which themselves are influenced by the perceived usefulness and perceived ease of use with which they can carry out their tasks. Davis (1989) described that perceived ease of use relates to whether or not someone feels that utilizing a particular system would be free of effort, while perceived usefulness refers to whether or not someone believes that using a specific system will improve their work performance (Davis, 1989). Recent studies have shown the effectiveness of TAM (Ashraf et al., 2014; Zhang et al., 2014, Ha et al., 2020) in many different sectors. It is widely accepted that it may explain the issue of customers' purchasing intention in an e-commerce environment. It has been more popular for customers, especially young ones, to purchase online in recent years because of the convenience and simplicity of use it provides (Wei et al., 2018). Research by Wang (2020) has also proved that perceived usefulness and perceived ease of use had a significant influence on cross-border e-commerce intention. Accordingly, the study puts forward the following hypothesis.

**H4: The intention to purchase Chinese commodities online is impacted by perceived usefulness.**

**H5: Perceived ease of use influences the decision to buy Chinese goods online.**

#### 2.2.5 Trust

Trust serves as a governance tool that is unpredictable, vulnerable, and dependent on trade interactions (Jarvenpaa et al., 2000). Relationships amongst individuals who have never met are anticipated to evolve gradually and begin with tiny acts that demand minimal trust (Jarvenpaa et al., 2000). According to Gefen (2002), trust is the belief that the people in one's life whom one has chosen to put their faith in would not take advantage of one's good fortune. Trust in websites is critical in e-commerce since customers will not purchase online if they do not have confidence in the seller's site (Gefen, 2002; Jarvenpaa et al., 2000; Ponte et al., 2015). Many of these transactional, buyer-seller interactions, particularly those involving a degree of risk, need a level of trust that is essential (Reichheld & Scheffer 2000). Research by Gefen et al. (2002), Jarvenpaa et al. (2000), Ha et al. (2020), and Ponte et al. (2015) had demonstrated that trust proposed a significant influence on buying intention. Particularly, Huang and Chang's (2019) findings proved that consumers' buying intention on cross-border e-commerce platforms was directly affected by trust. Gefen et al. (2002) and Jarvenpaa et al. (2000) claimed that consumers were less likely to make a purchase online due to a lack of trust. Therefore, the hypothesis is as follows.

**H6: Consumer's intention to shop for Chinese commodities online is significantly impacted by trust.**

### 2.2.6 Perceived Risks

Online shopping is a relatively new method of purchasing goods and services through the internet. Buyers' novelty may result in specific issues (Li & Huang, 2009). Previous studies have shown a correlation between the perceived risk of a new shopping channel and the decision to use that channel to purchase goods and services (Bhatnagar et al., 2000). As far as consumers are concerned, their sense of network risk is directly related to their perception of risk for individual applications (Zhang & Yu, 2020). Meanwhile, it reflects the consumer's uncertainty over the likelihood of losing or gaining money in a given transaction (Murray, 1991). According to Pavlov (2003), the risks that internet buyers may confront when transacting virtually may refer to financial risk (loss of money), risk from sellers, risk of privacy (personal information may be unlawfully divulged), and risk of security (credit card information can be stolen). Customers' purchase decisions are complicated by the feeling of apprehension about the future, which is represented by the concept of "perceived risk." As a direct consequence of this lack of clarity, customers will be less likely to make a purchase (Wei et al., 2018, p. 4). Therefore, the study proposes the below hypothesis.

**H7: Perceived risk performs a negative impact on purchasing intention of Chinese goods online.**

### 2.2.7 RCEP

The Regional Comprehensive Economic Partnership (RCEP) is an agreement to broaden and deepen the cohesion between ASEAN and China, Japan, Korea, Australia and New Zealand. More than half the world's economic output and population is generated by RCEP's member nations. The aim of the RCEP Agreement is to establish an economic cooperation platform that is contemporary, comprehensive, exclusive, and commonly invaluable to encourage regional trade and investment and simultaneously, contribute to the global economic growth. As a result, companies and individuals in the area will benefit from the Agreement, which will open up new markets and create employment. The RCEP Agreement will parallel and support an open, inclusive, and rules-based multilateral trading system. Recognizing the increase in digitization in trade, the association has added to the Agreement a Chapter on Electronic Commerce (e-Commerce) to promote e-commerce between the countries and the wide use of expanding e-commerce globally and, at the same time, strengthen cooperation. This chapter sets out provisions to encourage the parties to improve registration and trade management processes through electronic means. In addition, it requires the participants to adopt or maintain a legal framework to create an enabling environment for e-commerce development, including protecting the personal information of e-commerce users. In 2019, China's cross-border e-commerce penetration rate was 33.29 percent, up from 29.5 percent in 2018, according to the "China's Cross-border E-commerce Market Report in 2019" (Wang & Cao, 2021). Furthermore, "The Statistical Yearbook of China and ASEAN in 2019" highlighted that Vietnam had been one of the six largest importers of China for five consecutive years (Wang & Cao, 2021). Henceforth, the study introduces the following hypothesis.

**H8: The RCEP is expected to make consumers more likely to buy Chinese goods online.**

### 3. Research Model

#### 3.1 Questionnaire Design

The survey was conducted online from March 5 to April 8 in Hanoi, Vietnam, with 479 participants, of whom 253 samples satisfied the research requirement. The target respondents of the research are consumers who have experienced buying Chinese commodities via cross-border e-commerce platforms such as Tiki, Shopee, Lazada, Intermediary companies' websites, or mediators on social networks like Facebook and Instagram. The questionnaire is divided into three main parts in; which part 1 consists of 2 questions to filter the participants' location and to see whether they have joined cross-border e-commerce between Vietnam and China; In the second section, attendees' personal information, such as gender, age, educational attainment, and income, is gathered. A five-point Likert Scale is used in the third portion of the study to gauge how respondents feel about the variables.

Based on the preceding literature study, a questionnaire has been developed and adapted to fit the Vietnamese context. Variable values are derived from earlier research. Whether customers have a favorable or unfavorable opinion of purchasing online goods and services is the focus of this study. In this study, attitude is examined using the scale by Jarvenpaa et al. (2000). Subjective norms, on the other hand, pertain to how consumers see online buying as seen through the eyes of many actors. Variable "perceived behavior control" is based on how simple or challenging a person thinks it is to do online purchasing. Resources and expertise are seen as being available to conduct the activity; hence the study utilizes Wu and Chen's scale (2005) for "subjective Norms" and "Perceived behavior Control." Meanwhile, "Perceived ease of use" refers to how a consumer finds the system or website easy to use or not. The "perceived usefulness" variable is regarded from customers' advantages when purchasing online; the "perceived usefulness" variable is regarded. Those variables are measured by Pavlou's research (2003) metric. In this study, the term "trust" refers to a person's willingness to take a chance on an internet retailer. Because of this, it is based on the scale developed by Jarvenpaa et al. (2000). "Perceived risk" refers to customers' perceptions of potential gains and losses in online transactions. Accordingly, "perceived risk" is assessed using the scales developed by Forsythe et al. (2003). Besides, RCEP is facilitated by the principles of RCEP. The Likert scale, which ranges from 1 to 5, is used to gauge each variable. The scales are depicted as follows.

**Table 1. Factor Description**

<b>Factors</b>	<b>Items</b>
<b>Buying Intention</b>	I intend to buy goods from China online.
	I will buy goods from China online.
	I will purchase goods from China regularly.
	I would prefer to purchase goods from China online rather than buy them at physical stores or supermarkets.



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	I will recommend others to buy goods from China online
<b>Perceived Behavior</b>	I can purchase from China online
<b>Control</b>	My use of online shopping for goods from China is totally up to me.
	I have sufficient knowledge, skills, and experience to purchase from China online.
<b>Shopping Attitude</b>	I think buying goods from China is interesting
	I like to purchase commodities from China on online platforms
	I think buying goods from China online is a good idea
<b>Subjective Norms</b>	My intention to do online shopping from China is affected by people who are important to me.
	My intention to do online shopping from China is affected by people who have an influence on me.
	My intention to do online shopping from China is affected by people whose opinions are valuable to me.
<b>Perceived usefulness</b>	Using the internet to shop improves my performance in searching and purchasing goods from China.
	Using the internet to shop increases my effectiveness and productivity when buying from China.
	Using the internet to shop for Chinese goods is more convenient
<b>Perceived Ease of Use</b>	It is easy for me to navigate the products when shopping from China online.
	I am able to buy goods from China online without the help of an expert.
	Buy goods from China online does not require a significant mental effort.
<b>Perceived Risk</b>	I don't feel secure transacting when buying from China online
	I am concerned about my information security during a transaction when buying from China online.
	I am afraid that online stores/intermediaries will collect too much information about me when I am buying from China.
	Online stores/platforms/middlemen usually ensure transactional information is protected when I buy from China.
<b>Trust</b>	I believe that the quality of Chinese goods I buy online from China is good.
	I believe online stores/sellers/intermediaries online will not take advantage of me when I am buying from China.
	I believe online stores/sellers/intermediaries will keep their promises and commitments when I am buying from China.
	I believe online Chinese stores or Chinese goods sellers/intermediaries are trustworthy.
<b>RCEP</b>	I believe RCEP makes purchasing goods from China online more convenient.
	I believe RCEP helps lower the price of goods from China online.
	I believe RCEP will improve the quality of Chinese goods online.

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I believe RCEP will improve online transaction security when purchasing goods from China online.

I believe RCEP will diversify the source of Chinese goods online

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*Source:* Compiled by the author

### 3.2 Data Collection and Characteristics

The table below demonstrates the attendants' characteristics. Of 253 qualified respondents, the majority of the participants are female, consisting 78.8% (n=199), and only 21.3% are male (n=54). The data illustrates that more than 80% of the participants have an intellectual level equivalent to and greater than college level; 65% of the samples are between the ages of 18 to 25. However, nearly 60% of them only earn less than 7.000.000 VND a month, and a minority of 12.6% make their meet ends of more than 20.000.000 VND monthly.

**Table 2. Sample Characteristic (n=253)**

Characteristics	Quantity	Ratio (%)
<b>Gender</b>		
Male	54	21.3
Female	199	78.7
<b>Educational level</b>		
High school	33	13
Undergraduate	187	73.9
Graduate	33	13
<b>Average income per month</b>		
< 7.000.000 VND	179	58.9
7.000.000 VND - 20.000.000 VND	72	28.5
> 20.000.000 VND	32	12.6
<b>Age</b>		
Under 18	24	9.5
18 to 25	165	65.2
26 to 35	44	17.4
36 to above	20	7.4

*Data source:* Compiled by the author

The results also reveal that 36% of cross-border e-commerce activities occur via Shopee, the biggest online shopping platform in Vietnam, followed by middleman service with 17.10%, and Lazada, the platform backed by Alibaba, only ranks third with 16.20% of users.

**Table 3. Platform**

	Responses	
	N	Percent
Tiki	36	6.90%
Lazada	84	16.20%
Shopee	188	36.20%
Intermediary companies	50	9.60%
Middleman	89	17.10%
Others	73	14.00%
Total	520	100.00%

*Data source:* Compiled by the author

### 3.3 Data Analysis

The study employs SPSS software to analyze and evaluate the data. The data analysis method includes reliability testing, exploratory factor analysis, and regression analysis.

#### 3.3.1 Reliability Test

To evaluate the scale of concepts in the research, it is necessary to check the design and validity of the scale. Based on the Cronbach's Alpha coefficients, the correlation coefficient-the total (Corrected Item-Total Correlation) helps to exclude the observed variables that do not contribute to the description of the concept to be measured, while the coefficient Cronbach's Alpha if item deleted eliminate observed variables to improve the design coefficient for the concept.

According to Hoang and Chu (2008), the scale with Cronbach's alpha coefficient of  $\geq 0.6$  is qualified for analysis; of  $\geq 0.7$  is a good scale; and of  $\geq 0.8$  is a very good scale. Observed variables with Corrected Item – Total Correlation coefficient of  $< 0.3$  or with Cronbach's alpha index is larger than the current Cronbach's alpha coefficient will be removed from the scale ((Hair et al., 2010).

**Table 4. Scale Reliability Testing Results**

Observed variables	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
<b>Buying Intention</b>			
BI1	0.609	0.783	
BI2	0.592	0.789	
BI3	0.612	0.782	0.818
BI4	0.621	0.780	
BI5	0.622	0.779	
<b>Perceived Behavior Control</b>			

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PBC1	0.629	0.657	
PBC2	0.585	0.710	0.768
PBC3	0.599	0.696	
<b>Shopping Attitude</b>			
SA1	0.599	0.728	
SA2	0.617	0.709	0.782
SA3	0.645	0.678	
<b>Subjective Norms</b>			
SN1	0.616	0.685	
SN2	0.605	0.698	0.733
SN3	0.603	0.700	
<b>Perceived Usefulness</b>			
PU1	0.548	0.677	
PU2	0.574	0.650	0.741
PU3	0.580	0.639	
<b>Perceived Ease of Use</b>			
PEU1	0.647	0.716	
PEU2	0.632	0.711	0.787
PEU3	0.636	0.704	
<b>Perceived Risk</b>			
PR1	0.634	0.720	
PR2	0.620	0.726	
PR3	0.645	0.713	0.790
PR4	0.497	0.785	
<b>Trust</b>			
T1	0.689	0.734	
T2	0.562	0.795	
T3	0.615	0.768	0.810
T4	0.652	0.750	
<b>Regional Comprehensive Economic Partnership</b>			
RCEP1	0.586	0.814	
RCEP2	0.718	0.784	
RCEP3	0.652	0.796	0.834
RCEP4	0.688	0.785	
RCEP5	0.560	0.824	

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*Data source:* Compiled by the author

It can be seen from the table that all of variables have Cronbach's alpha coefficient higher than 0.6, of which RCEP has the highest coefficient and PU has the lowest. None of the observations has their Corrected Items-Total Correlation smaller than 0.3 or larger than their Cronbach's alpha, hence the research accepts all of the scale. Consequently, the final result depicts that all of the observations are reliable and can be used in this research.

### 3.3.2 Exploratory Factor Analysis

The conceptual scales in the model that meet the requirements for reliability will be used in EFA exploratory factor analysis with Principal component extraction, Varimax rotation, and breakpoints when extracting factors with Eigenvalues  $\geq 1$  for 33 observed variables.

KMO and Barlett test are utilized to measure the appropriateness of the evaluated variables for reliability, in which  $KMO \geq 0.9$  is very good;  $KMO \geq 0.8$  is good;  $KMO \geq 0.7$  is usable;  $KMO \geq 0.6$  is temporary;  $KMO \geq 0.5$  is bad; and  $KMO < 0.5$  is unacceptable (Kaiser, 1974). According to Hoang and Chu (2008), if Bartlett test has Sig value.  $> 0.05$ , the sample should not be adopted for factor analysis.

According to Hoang and Chu (2008), when testing the reliability of the observed variables, the factor loading coefficient  $\geq 0.3$  is considered to be the minimum level, and the loading factor  $> 0.5$ , it has practical significance. If the factor loading coefficient  $< 0.3$ , it should be removed. Studies by Hair and his colleagues also suggest that Total Variance Explained should be larger than 50% and Eigenvalue is larger than 1.

After the EFA analysis, 3 observations namely RCEP2, T1, and PR1 are excluded from the research seeing that those observations appeared in more than one factor or have the loading factor coefficient is less than 0.3, which does not guarantee discriminant validity in exploratory factor analysis. After removing these observed variables, the author conducts the second exploratory factor analysis for the independent variables, the results are as follows:

**Table 5. Rotated Component Matrix<sup>a</sup>**

	Component							
	1	2	3	4	5	6	7	8
RCEP5	0.747							
RCEP1	0.735							
RCEP4	0.724							
RCEP3	0.680							
PEU1		0.796						
PEU3		0.791						
PEU2		0.759						
SA3			0.824					
SA2			0.779					
SA1			0.738					

PBC1	0.803		
PBC2	0.771		
PBC3	0.751		
SN1		0.785	
SN2		0.781	
SN3		0.766	
PU2			0.776
PU3			0.767
PU1			0.76
T2			0.763
T4			0.755
T3			0.745
PR2			0.780
PR3			0.735
PR4			0.728
<b>KMO</b>	0.870		
<b>Sig.</b>	0.000		
<b>Eigenvalue</b>	1.153		
<b>Cumulative %</b>	68.018		

*Data source:* Compiled by the author

Data testing results with  $KMO = 0.870 (> 0.5)$ ,  $Sig. = 0.000 (< 0.05)$  satisfy the conditions for exploratory factor analysis. The factor loading coefficients of the observed variables are all  $> 0.5$ , the total variance extracted is  $68.018\% (> 50\%)$  and the Eigenvalue coefficient =  $1.153 (> 1)$ . Therefore, these tests were warranted for exploratory factor analysis.

### 3.3.3 Correlation Analysis

Once the scales and the EFA analysis have been shown to be reliable, the mean value can be calculated using the scales, and the controlled variables can be inputted for correlation analysis. It is possible to determine whether or not variables have a linear relationship by using Pearson's correlation coefficient ( $r$ ). It is possible to do a linear regression analysis on data that has a high correlation coefficient between the dependent and independent variables. If  $r$  is zero, then the relationship is strictly linear. More closely connected two variables are when  $r$ 's absolute value is near 1 and vice versa. The analysis results to evaluate the correlation by Pearson's coefficient show that all the independent factors are correlated with the dependent variable at 1% significance level (equivalent to 99% confidence level), in which the variable PEU has the highest positive correlation coefficient ( $r = 0.572$ ), and the variable PR has the negative correlation coefficient ( $r = -0.521$ ). Moreover, the independent variables have a linear relationship with each other, but the degree of correlation is not significant.

**Table 6. Correlations**

		BI	PBC	SA	SN	PU	PEU	PR	T	RCEP
BI	Pearson Correlation	1	.508**	.498**	.505**	.439**	.572**	-.521**	.556**	.505**
	Sig. (2-tailed)		0	0	0	0	0	0	0	0
	N	253	253	253	253	253	253	253	253	253
PBC	Pearson Correlation	.508**	1	.294**	.297**	.236**	.346**	-.338**	.315**	.417**
	Sig. (2-tailed)	0		0	0	0	0	0	0	0
	N	253	253	253	253	253	253	253	253	253
SA	Pearson Correlation	.498**	.294**	1	.322**	.252**	.364**	-.351**	.365**	.388**
	Sig. (2-tailed)	0	0		0	0	0	0	0	0
	N	253	253	253	253	253	253	253	253	253
SN	Pearson Correlation	.505**	.297**	.322**	1	.334**	.377**	-.324**	.275**	.312**
	Sig. (2-tailed)	0	0	0		0	0	0	0	0
	N	253	253	253	253	253	253	253	253	253
PU	Pearson Correlation	.439**	.236**	.252**	.334**	1	.278**	-.339**	.268**	.347**
	Sig. (2-tailed)	0	0	0	0		0	0	0	0
	N	253	253	253	253	253	253	253	253	253
PEU	Pearson Correlation	.572**	.346**	.364**	.377**	.278**	1	-.308**	.419**	.347**
	Sig. (2-tailed)	0	0	0	0	0		0	0	0
	N	253	253	253	253	253	253	253	253	253
PR	Pearson Correlation	-.521**	-.338**	-.351**	-.324**	-.339**	-.308**	1	-.302**	-.355**
	Sig. (2-tailed)	0	0	0	0	0	0		0	0
	N	253	253	253	253	253	253	253	253	253
T	Pearson Correlation	.556**	.315**	.365**	.275**	.268**	.419**	-.302**	1	.380**
	Sig. (2-tailed)	0	0	0	0	0	0	0		0
	N	253	253	253	253	253	253	253	253	253
RCEP	Pearson Correlation	.505**	.417**	.388**	.312**	.347**	.347**	-.355**	.380**	1
	Sig. (2-tailed)	0	0	0	0	0	0	0	0	
	N	253	253	253	253	253	253	253	253	253

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

*Data source:* Compiled by the author

In conclusion, the above Pearson correlation analysis results show that all independent factors can be included in the linear regression analysis.

### 3.3.4 Regression Analysis and Hypothesis Testing

Regression analysis was used to evaluate the effect of independent variables, namely perceived

behavioral control, shopping attitude, subjective norms, perceived usefulness, perceived ease of use, perceived risks, Trust, and RCEP on Hanoian consumers' intention to participate in cross-border e-commerce between Vietnam and China. The value of the factors utilized in regression analysis is the mean of the observed variables that have been evaluated for scale reliability and exploratory factor analysis.

**Table 7. Coefficients**

<b>Independent variables</b>	<b>B</b>	<b>Beta</b>	<b>Sig.</b>
Constant	0.65		0.075
Perceived Behavior Control	0.158	0.165	0
Shopping Attitude	0.132	0.122	0.007
Subjective Norms	0.122	0.160	0
Perceived Usefulness	0.119	0.113	0.009
Perceived Ease of Use	0.186	0.206	0
Perceived Risk	-0.167	-0.174	0
Trust	0.208	0.215	0
RCEP	0.099	0.085	0.07
<b>R</b>	0.803		
<b>R square</b>	0.645		
<b>Adjust R Square</b>	0.634		
<b>F</b>	Sig. = 0.000		

*Data source:* Compiled by the author

The results of regression analysis show that the R coefficient has a value of 0.803, implying the relationship between the variables in the model has a strong correlation. The model's regression results report reveals that the value adjusted R<sup>2</sup> = 0.634, which means that the model's relevance is 63.4%, or in other words, 63.4% of the variation in consumers' decisions to buy Chinese commodities virtually is explained by the variability of the variables including Perceived Behavior Control, Shopping Attitude, Subjective Norms, Perceived Usefulness, Perceived Ease of Use, Perceived Risk, and Trust with 95% confidence, leaving 36.6% of the variation of the dependent variables due to variables other than the model that have not been identified. On the other hand, RCEP with a significance level of 0.070 (larger than 0.05) shows no influence on the dependent variable and hence is excluded from the function. Specifically, the regression function is written as follows:

$$BI = 0.650 + 0.158*PBC + 0.132*SA + 0.122*SN + 0.199*PU + 0.186*PEU - 0.167*PR + 0.208*T$$

Beta coefficients of Perceived Behavior Control, Shopping Attitude, Subjective Norms, Perceived Usefulness, Perceived Ease of Use, and Trust are more significant than 0, and significance levels are



smaller than 0.05; therefore, they have a positive impact on customers' purchasing decisions. The beta coefficient of risk is smaller than 0, and the significance level is smaller than 0.05; hence, it has a negative effect on consumers' intention to buy Chinese goods online. On the other hand, RCEP with a significance level of 0.07 larger than 0.05 means that it proposes no influence on the purchase intention. As a result, the research accepts hypotheses H1, H2, H3, H4, H5, H6, and H7 and rejects hypothesis H8.

According to the 5-level Likert scale, under other conditions unchanged, when the Perceived Behavior Control increases by 1, the level of customer buying decision increases to 0.165 units. Similarly, Shopping Attitude increased by 1, and the level of customer purchase decisions increased to 0.122 units. If Subjective Norms is increased by 1 unit, the degree of purchase increases to 0.160 units. Perceived usefulness goes up by 1 unit, the level of consumer intention also goes up by 0.113 units. Perceived Ease of Use grows by 1 unit, the level also grows by 0.186 units. Correspondingly, trust rises by 1 unit, the level also rises by 0.208 units. Meanwhile, risk perception increases by 1 unit, and the customer's purchase decision level decreases by 0.096 units.

#### **4. Discussion and Findings**

It is the primary goal of this article to investigate the elements that influence Vietnamese cross-border e-commerce customers' inclination to buy by integrating the Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM) with 3 other factors, namely Perceived Risk, Trust and the influence of Regional Comprehensive Economic Partnership (RCEP).

As the results demonstrated, a majority of cross-border internet shoppers are between the ages of 18 and 25, making up more than 65% of the participants. Researchers have shown that the average age of people who utilize innovative products and services, mainly information and communication technology (ICT) and services like computers, smartphones, the internet, and online payments, tends to be younger (Rogers, 1995). According to KPMG's recent Global Online Consumer Report (KPMG, 2017), online buyers in their 20s had the most remarkable proclivity for making foreign purchases. More and more young consumers embrace the concept of cross-border shopping (An et al., 2016). It is widely accepted that the younger and more technologically adept millennials in their 20s are primarily responsible for the rise in international internet purchasing (An et al., 2016). As a result, Vietnamese consumers who purchase Chinese commodities online tend to be young adults with a college degree or more who have frequent access to the internet. That also explains why a large proportion of the attendants only make under 7.000.000 VND a month as they are full-time students or just graduated from university.

The study also proved a strong relationship between Perceived Behavior Control and consumption tends to trans-boundary virtual shopping. Due to cross-border online purchasing's limited availability to those who can utilize the Internet (Han et al., 2018), Perceived Behavior Control, which indicates consumers' capacity to participate in cross-border e-commerce activity, depicts a significant influence.

This result is comparable with Han et al.'s (2018) and Ha et al.'s (2020) research.

There is also a positive relationship between consumer intention and attitude. This indicates that the more positive consumers think of buying Chinese commodities online, the more likely they will make a purchase. The outcome is consistent with the previous research by Delafrooz et al. (2011), Han et al. (2020), and Lin (2007).

While Bonera (2011) cannot show a significant influence of subjective norms on purchasing tendency, the article demonstrates that subjective norms perform a positive impact on consumer intention to buy Chinese commodities online. Furthermore, Kraut et al. (1996) discovered that people are more likely to surf the internet if their social circle includes other internet users. An additional crucial social influencer of cross-border internet shopping intentions has been shown to be the media. According to this study, cross-border e-commerce purchases are more likely to be influenced by external factors such as the media and the popular press (Bhattacharjee, 2000; Bhattacharjee & Sanford, 2006). Indeed, studies by Nguyen and Le (2021) have proved that celebrities, internet influencers, and KOLs positively influenced Vietnamese youngsters' tendency to shop online. Consequently, it is suggested that international online businesses should improve their images on social networks, blogs, or endorse online influencers, besides traditional channels like TV, newspapers, and magazines.

Along with the above determinants, the study also recommends that there is a unique link between consumption intention, Perceived Usefulness, and Perceived Ease of Use. Previous works suggested that IT-related factors play a crucial role in foreseeing the consumer tendency (Gefen et al., 2003; Han et al., 2018; Ha et al., 2020). One of the essential issues for active e-commerce consumers is that IT-oriented professions are becoming more vital (Pavlou, 2003). Hence, trans-boundary virtual business operators should make their websites more accessible, feasible, and customer-friendly.

The research suggests Perceived Risk has a strong negative impact on the consumer's intention to join cross-border e-commerce. The result is consistent with the previous studies (Bhatnagar et al., 2000; Ha et al., 2020; Wei et al., 2018). Risks arising in international online trading refer to transactional risks (loss of money) and privacy risks (illegal usage of personal information). The lack of direct contact and the traditional habit of physically exchanging makes the consumers hesitant to make a purchase virtually when they cannot experience the product and communicate with the sellers face-to-face. Moreover, internet shopping in Vietnam is still in its infancy, and legal protection for customers is quite limited at this point. Customers' perceptions of online buying dangers are heightened as a result of this predicament. Henceforth, it is well-suited to the Vietnamese market, where customers' willingness to buy is strongly affected by risks. In terms of the financial risks, the consumers are concerned about being scammed and losing money because they have to pay in advance before touching, feeling, and trying the products. The most powerful solution for sellers to mitigate this negative influence is to seek a third-party payment processor. The third party is considered as a money assurance agent who keeps the money until the buyers receive the products and check them; the money is only released when the consumer allows it or when the checking processing ends. In terms of privacy risks, it is recommended

that the sellers publish a disclaimer in which they state how the collected information will be used and a guarantee to protect personal information security.

Cross-border e-commerce requires a high level of trust in order to succeed (Liu, 2018). In accordance with the statement, the result shows that trust has a significant impact on purchase intention in international online trade. In cross-border e-commerce, the buyer is exposed to more risks and uncertainties due to the lack of knowledge asymmetry between the seller and buyer (Liu, 2018). Moreover, except for cultural differences, the separation in time and location leads to hesitation in purchase intent. Hence, it emphasizes that building trust is essential for online business. The research focuses on consumers' belief in the trustworthiness level of the sellers. The higher the degree of reliability is, the more confident the consumer is in making the purchase. It is recommended that the sellers should provide sufficient product descriptions because subjective knowledge about the products could actively contribute to product reliability (Liu, 2018).

As for the impact of RCEP, the result reveals that RCEP does not put forward any effect on Vietnamese online consumers when engaging in cross-border virtual trade. It is stated in Chapter 12 of RCEP agreement that RCEP will bring about a transparent international virtual trading environment by protecting cross-border transactional information and personal data; diversifying the source of goods; providing protection to the consumers against fraudulent and misleading practices by implying a common set of law and regulations, enable more economical price by imposing a huge reduction on taxes, fees, and other charges; introduce remedies for disputes under e-commerce. In spite of those advantages stated above, Vietnamese consumers seem not to be acknowledged them or do not see the implementation of RCEP, which causes invisible benefits and actual effects. Moreover, since the agreement has just been put into action on January 1, 2022, the influence may not be noticeable. Another potential reason is that the state has not yet issued a specific guide for sellers to follow, so the consumers do not witness the benefit or are ensured when purchasing products. Hence, it is suggested that the government should educate the public about the benefits of RCEP, implement relevant policies in accordance with the RCEP principles, and at the same time publish official instructions to cross-border e-commerce businesses.

Besides the findings, the paper contains some limitations. Firstly, the sample is small and witnesses an imbalance in the number of female and male respondents. The survey only approached a minority of online shoppers online via social networks and was operated for a short period of time. Therefore it cannot ensure the generalization of the whole population involved in cross-border e-commerce between Vietnam and China in Hanoi, Vietnam. Future research can collect a larger random sample in different regions in the country to be more representative so that the result will be more sustainable. Secondly, in terms of Perceived Risks, the research only focuses on two elements which are financial risks and privacy risks. It is suggested that future research should cover all of the risks, including product risks and delivery risks which will generate a broader and comprehensive finding of this determinant. Thirdly, as for RCEP, since the research is operated too soon when the Agreement just has been

implemented, the result is not representative enough and temporary. There is a need for further studies to fully understand the influence of this factor on Vietnamese consumers' purchase intentions. Finally, an online shopping platform is also an essential element worth studying because most cross-border transactions occur on those websites or applications; they are also a powerful tool for both purchasers and sellers to interact, hence posing a significant impact on online shopping intention.

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