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PHAM DINH HAN

**THE AFFECTING FACTORS ON
CONSUMERS' CONDOMINIUM PURCHASE
INTENTION IN HO CHI MINH CITY**

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SUMMARY OF DOCTORAL THESIS

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Scientific Advisors:

1.. Ph.D. VO THANH HAI

2. Assoc. Prof. Ph.D. ĐAO DUY HUAN

Reviewer 1:

Reviewer 2:

Reviewer 3:

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PREFACE

1. The urgency of the topic

Real estate market in which a commercial condominium (CC) market exists, plays an essential role in the economy of Ho Chi Minh City as well as Vietnam. The real estate market is a special commodity market due to its significant impact on not only the national economy but also social development. In fact, the real estate market has a close-knit connection with the financial market, money market, stock market, construction market, etc.

Ho Chi Minh City houses nearly 9 million citizens (General Statistics Office of Vietnam, 2019); while in reality, there are over 13 million people living, studying, and working here. An increase of 200.000 people in Ho Chi Minh City's population is recorded annually while 476.000 families who have not been accommodated or are sharing the house with their relatives account for a quarter of the total households in Ho Chi Minh City (Bui Yen, 2019), which leads to a growth in housing demands of the local citizens in the following years. As a matter of fact, condominiums are known as the most efficient solution to accommodate thousands of families per year. It is undeniable that advanced technologies, engineering, and materials are substantially beneficial to building condominiums rapidly and adapting the scarcity, limitation and saving requirement in land. In five years from 2019 to 2022, the proportion of CC pricing has soared to 10 percent per year (CBRE Viet Nam, 2022), which obstructs those who have middle and low incomes from settling down with their families. On the one hand, the housing demands in Ho Chi Minh City are found to be tremendous, however, the CC supplies show a contrary scenario. On the other hand, numerous condominiums in the inventory keep climbing, which results in extreme competition between in-stock businesses in the industry.

Purchasing a condominium is one of the most economically notable decision that a consumer will pay close attention to since acquiring information regarding the condominiums' traits such as functions, quality, convenience, interior/exterior designs, pricing, and the atmosphere in the vicinity is a must (Haddad et al., 2011; Zadkarim and Emari, 2011). In order to sustain the business in the CC market, the consumers'

condominium purchasing behaviors should be considered as highly attentive products, which requires complicated decision-making (Haddad et al. (2011). It is evident that the success of a real estate business relies on the precise analysis of consumers' purchasing behaviors towards CC to ensure that their demands are well met. Recently, many pieces of research related to customers' decisions to purchase properties and CC have been studied and explained with a variety of statements and theories applied. In general, a majority of those pieces began with how CC's traits themselves affect the desires and decisions of consumers. Despite the inconsistency between the results, researchers have pointed out the importance of condominiums' properties in customers' decision-makings. According to the research of Mr. Hoang Van Cuing (2017), real estate commodities are heterogeneous in terms of peculiarity, distinction, regionalization, and remarkably governed by psychological factors. Such difference requires a study strategy that examines personalization as a stand-alone attitude of each consumer towards a positive or negative evaluation when a condominium is purchased, his perceived social pressure (subjective norms), determinants of self-perception or behavioral possibility which is defined as Perceived behavioral control and Perceived risk of consumers when a valuable property is acquired as condominiums.

Consumers' housing purchase behaviors have been analyzed with a Theory of Planned Behavior (TPB) by relevant researchers in the field (AL-Nahdi, 2015; Islam et al., 2022; Judge et al., 2019; Kamal & Pramanik, 2015; Le-Hoang et al., 2020). Following the applied theory in consumers' planned behavior, a wide range of discussions were conducted to determine whether TPB is qualified to predict the planned behavior (Conner & Armitage, 1998; Eagly & Chaiken, 1993); thus, it is concluded that an addition of independent factors and/or structures in the theory possibly leads to a more accurate prediction in Purchase intention toward a specific commodity. Several researchers have been expanding the TPB to study the Consumers' purchase intention in the context of real estate, which can be referred from several studies of AL-Nahdi (2015a) in Saudi Arabia, Islam et al. (2022), Kamal in Pramanik (2015a) in Bangladesh, Zhang et al. (2018, 2022) in China, Le-Hoang et al. (2020) in Vietnam, and Dao Duy Huan et al. (2021) in Vietnam. Beside the primary structure of

the TPB, commodity's properties and economic factors have also been taken into account. However, perceived risk and market factors were claimed to affect the purchase intention toward valuable commodities while the number of real estate studies were found limited.

In the scenario of Vietnam's real estate market, some studies are concentrated on the housing property analysis influencing purchase intention (Dao Duy Huan et al., 2021; Ngo Manh Lam et al., 2020; Tran Xuan Luong et al., 2020) while other researchers put their efforts in direct factors involved in CC purchase intention (Nguyen Quang Thu, 2013; Le-Hoang et al., 2020; Nguyen Thi Tung Phuong, 2018). Nevertheless, the aforementioned research targeted the population in which the consumers have owned a house or a CC; hence, the purchase intention of those who have not owned a CC remains unclear. In fact, the correlation between intention and behavior generally differs from one another among relevant studies. It is stated that a firm intention provides a better prediction in the behavior; thus, the gap between intention and behavior is shortened and vice versa (Sheeran, 2002). Furthermore, due to the durability and excess of CC themselves, consumers' purchase intention corresponds with Perceived risk; thence, as the outcome of such purchases is uncertain and some might result undesirably (Bauer, 1967; Mitchell, 1999; Cunningham et al., 2005). As a consequence, this thesis aims at explaining the influencing factors, influencing levels, and influencing procedures toward purchase intention. In particular, the study investigates the essence of Perceived risk factors on consumers' desires to own apartments. Additionally, the thesis takes into consideration the intermediate role of Attitude toward purchase behavior in the multi-level relationships among the groups of commodity's attribute factors, market factors, Subjective norms and Perceived risk as well as the intermediate role of Perceived behavioral control between the Perceived risk and condominium purchase intention. For this reason, the study provides real estate business managers with management implications to attract consumers' purchase intention via efficient practices, which simultaneously plays a supporting role in promoting sustainable development of Ho Chi Minh City's condominium market. The expected outcome of this study looks forward to the successful

application of extended TPB in predicting consumers' desire to buy condominiums in developing countries.

The study of Consumers' condominium purchase intention is crucial to the real estate context of Ho Chi Minh as well as of Vietnam. The topic *"The affecting factors on consumers' condominium purchase intention in Ho Chi Minh City"* is implemented in this thesis with a vision of theoretical and practical contribution.

2. Research Objectives

❖ General Objective

This thesis determines the impact of the factors associated with the intention to purchase condominiums of Ho Chi Minh City's housing consumers via the intermediate roles of the Attitude toward buying behavior and Perceived behavioral control. Based on the study's results, the topic suggests a managerial implication to help real estate enterprise managers take measures to attract future condominium owners in Ho Chi Minh City, which eventually contributes to the sustainable development of the city's real estate market.

❖ Specific Objectives

- **First Objective:** Identifying the factors and establishing a measuring scale of those factors affecting the consumers' intention to buy condominiums in Ho Chi Minh City.

- **Second Objective:** Measuring the impact of the factors affecting the consumers' intention to buy condominiums in Ho Chi Minh City.

- **Third Objective:** Examining the distinction in correlation between the factors and Purchase intention based on personal characteristics such as sex, age, academic level, profession, income, accommodation status, and the number of family members.

- **Fourth Objective:** Suggesting a managerial implication to provide real estate enterprise managers a solution to attract future condominium owners in Ho Chi Minh City.

3. Research questions

- **Question 1:** What are the factors (including the measuring scale) affecting consumers' apartment purchase intention in Ho Chi Minh City?

- **Question 2:** What is the level(s) of impact that the factors affect the consumers' condominium purchase intention in Ho Chi Minh City?

- **Question 3:** Is there a difference between the personal characteristics such as sex, age, academic level, profession, income, accommodation status, and the number of family members in correlation between the factors and Consumers' intention to buy condominiums in Ho Chi Minh City? If there is a difference, how much is the difference?

- **Question 4:** What is the managerial implication that assists the real estate enterprise managers to attract consumers to purchase condominiums in Ho Chi Minh City?

4. Research subject and scope of research

- **Research subject:** The subject of the thesis is the factors affecting the consumers' intention to buy condominiums in Ho Chi Minh City.

- **Scope of research:**

+ **The scope of content:** The topic concentrates on studying the Consumers' condominium purchase intentions. In particular, condominiums are apartments/houses constructed in apartment buildings in Ho Chi Minh City. Furthermore, the consumers are individuals, whose nationality is Vietnamese and, who own condominiums for accommodation, which do not involve groups of individuals or enterprises. In addition, the thesis scopes at the consumers' purchase intention toward the condominiums worth less than or equal to 90 million dongs per square meter.

+ **The survey object:** At the time of the survey, the survey objects were present at Ho Chi Minh City.

+ **The scope of research:** The study was conducted in Ho Chi Minh City.

+ **The timeframe:** The secondary data are presented for a five-year period (2017 – 2021) and the primary data are collected from November 2021 to the end of March 2022.

5. Research methodology

❖ Qualitative research methods

Qualitative research was conducted in the form of expert interviews and in-depth group discussions to identify independent variables, construct a research model, and explore, adjust, and supplement observed variables for concepts' and research content's measurements.

❖ Quantitative research methods: was conducted in two major states:

First state: Preliminary quantitative research aimed at adjusting the measuring scale through Cronbach's alpha coefficient. Subsequently, a questionnaire was set up based on the adjustment of measuring scale following the research results by expert methods.

Second state: Formal quantitative research determined the theories and research models. The sample size of the study was 793 observations. Descriptive statistics and credibility assessment were implemented using the Cronbach's alpha coefficient. Exploratory Factor Analysis (EFA) was assisted by statistical software SPSS.20. Confirmatory Factor Analysis (CFA), theory accreditation and research model were supported by statistical software AMOS.20. Bootstrap method along with repeated sample N=1000 were executed to test the regression coefficients in SEM model. The intermediate roles among variables were inspected using Bootstrap method. Multi-group structure analysis was conducted to test the roles of moderator variables and compare the difference in the impact relationship between the factors affecting condominium purchase intention and a variety of distinctive personal characteristics.

6. Research structure

Preface

Chapter 1: Overview of relevant research papers and research gaps

Chapter 2: Theoretical basis and research model

Chapter 3: Research design

Chapter 4: Research findings analysis and discussion

Chapter 5: Conclusion and managerial implication(s)

CHAPTER 1

OVERVIEW OF RELEVANT RESEARCH PAPERS AND RESEARCH GAPS

1.1. The factors affecting condominiums' purchase intention

In the previous topics, several research outputs have shown that the main factors positively influencing condominium and housing purchase intention have extensive similarities. There are sixteen factors in total, which can be listed as Attitude toward behavior, Subjective norms, Perceived behavioral control, Self-image, Subjective knowledge, Condominium facilities, Condominium location, Environmental factors, Quality, Financial factors, After-sales services, Difficulties of residential lands, Urbanization and population growth rates, Culture transformation, Brands, and Promotions. The aforementioned factors are examined for research model selection using qualitative research method.

1.2. Synthesis of relevant research models

There is a broad range of research models concentrating on the factors affecting Purchase intention, housing purchase decision and consumers' decision to buy condominiums. Each study applies a theoretical framework or extends existed theoretical framework in which TPB was applied or extended in various topics. A majority of research papers were conducted with non-probability data collection method and multivariable linear regression with least squares estimation as the primary data analysis method. Thereby, most of the relevant studies consider product attributes to be positively influential to Purchase intention and consumers' decisions to buy houses and condominiums. Besides, domestic studies have also prioritized the impact of property attribute elements in the scope of consumers' housing and condominium purchase decision study while ignoring personal and market factors. In spite of that, most studies have not mentioned the meditating role of Attitude toward behavior except for the study of Kamal and Pramanik (2015a), Kamal et al. (2016) nor referred to consumers' perceived risk when purchasing houses and/or condominiums which is defined as a property with high value, long-term use, and governed by legal regulations.

1.3. Research gaps

Most of the previous studies aimed at exploring the influence of attributes of product groups, Attitude, Subjective norms and Perceived behavioral control on the intention to buy a house and condominium. Meanwhile, these studies have not examined market factors and risks affecting the Intention to buy a house and condominium as well as clarified the relationship between product attributes, market factors and consumers' attitude toward purchase behavior. Consequently, a research gap has been present for a clarification in this topic. Based on a review of studies applying TPB, it is apparent that the thinking process has been explained by this theory. To be specific, the more favorable and easier the Attitude towards buying behavior, Subjective criteria, and Perceived behavioral control are, the stronger the Intention to perform the behavior. However, the factors in the vicinity such as product attributes, market factors, and risks affecting the thinking process has not been confirmed, which can be specified as follows:

1.3.1. Perceived risk

Decisions to purchase high-value commodities involve Perceived risks because the consequences of the purchase are uncertain and some outcomes might be undesirable (Bauer, 1967; Mitchell, 1999; Cunningham et al., 2005). Several studies have confirmed the positive influence of Perceived risk on the benefits of information seeking (Koklic, 2011; Srinivasan & Ratchford, 1991; Sundaram & Taylor, 1998). Recent studies have also pointed out that the more significant the perceived risk, the more the consumers tend to minimize the risks by different practices including information seeking. Therefore, the consumers' Attitude toward buying behavior, perceived behavioral control and Purchase intention are reduced (Sandarac & Taylor, 1998; Dholakia, 2001; Murray & Keith, 1991; Dowling & Stalin, 1994; Cho & Lee, 2006).

Condominiums are high-value commodities, so the purchase decisions might reflect great risks and financial burden on the consumers. The consumers might have not predicted purchasing condominiums would be a financial debt when the purchase was made. The question is that if consumers cannot foresee the risks, what would they do with the property? The uncertainty of condominium as a commodity has raised an alarm to

the consumers to consider carefully before a transaction is completed. If the consumers perceive possible risks, they can delay the purchase decision.

1.3.2. Intermediate role of attitude toward buying behavior

Ajzen (1991) has suggested that TPB can be tested via Fast-moving consumer goods sectors (low-participation consumer goods and purchases). Meanwhile, condominiums are a special, high-value commodity with extendable purchase period, so the Purchase intention will also be diverse. In various cases, consumers only make a decision once in their lifetime, it is possible that the Theory of planned behavior alone is inadequate for this case. Hence, the extension of TPB is a must. Behavioral economic theory based on psychology and economics has proposed that consumer behavior is related to finance and savings (Mullainathan and Thaler, 2000; Reed et al. (2013). The theory has analyzed the tendency and experienced behaviors of consumers when purchase decisions are made (Thaler, 1980). Furthermore, the Howard–Sheth model has illustrated that the factors acting as stimuli such as symbolic factors (quality, price, distinctness, service, availability), social factors (families, social class reference group) are the premise of attitude toward behavior. On that account, extending TPB by joining additional factors and their relations with purchase intention based on Howard–Sheth’s model theory and behavioral economic theory is essential.

CHAPTER 2

THEORETICAL BASIS AND RESEARCH MODEL

2.1. The concepts relevant to the research subject

- Consumers’ condominium purchase intention is defined as a practice in which the consumers are willing to buy condominiums in the near future. This concept is consistent with previous studies (Ajzen, 1991; Al-Nahdi, 2015; Islam et al., 2022; Judge et al., 2019; Numraktrakul et al., 2012)

- Consumers as retail buyers (those who buy condominiums for accommodation), which does not include the buyers for rental investment nor for resale.

- Condominiums are apartments/houses located in the apartments and constructed by investment organizations for sale following the market mechanism.

2.2. The extended application of the Theory of planned behavior (TPB) in the study of Consumers' condominium purchase intention.

Intention is an indication that a person is willing to perform a certain behavior and is considered the direct determinant or cause of the occurrence of the behavior. The intentions are formed based on Attitude toward behavior, Subjective norm, and Perceived behavioral control in which each of these predictors has a crucial relationship with behaviors and preferences (Ajzen, 2005). TPB follows an assumption that humans are rational beings and systematically uses the information available to them. People think about the implications of their actions before they decide whether to perform a particular behavior (e.g. buying a condominium). However, TPB is based on the assumption that humans systematically make decisions from available information, so unconscious motives are not examined (Hale, 2003). Normative variables do not possess environmental and economic factors affecting the Intention to perform a behavior (Sniehotta et al., 2014; Yazdanpanah & Forouzani, 2015). Therefore, extending TPB to study the Intention to perform a behavior is acceptable. some previous studies applying TPB had included additional components in the model to improve some limitations of TPB and enhance it to adapt to different research conditions (AL-Nahdi et al., 2015a; Islam et al., 2022; Wibawa & Hartoyo, 2017; Yoke et al., 2018; Zhang et al., 2018).

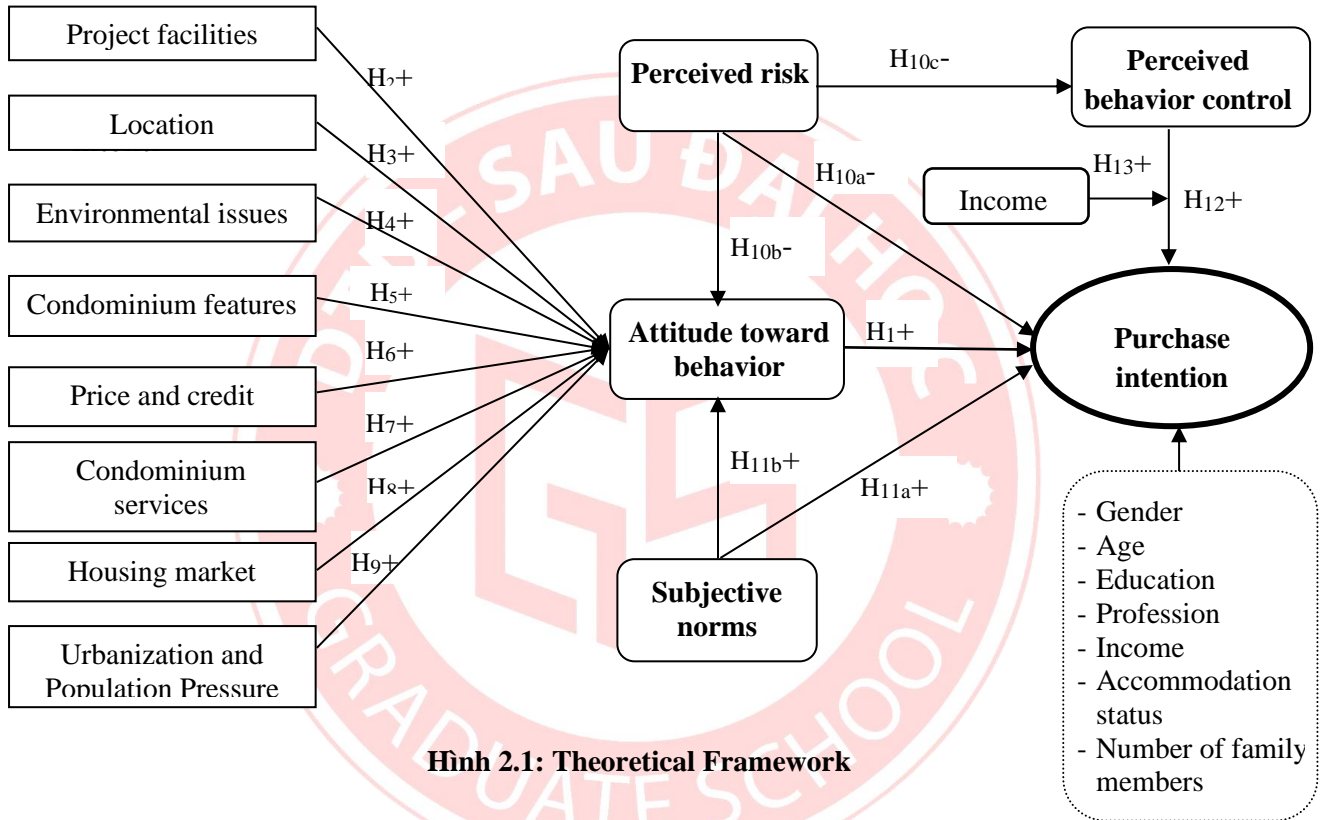
Learning economic theory based on psychology and microeconomics has suggested that human behavior differs from standard behavior in practice and is mainly essential to practical economy such as finance and savings (Mullainathan & Thaler, 2000; Reed et al., 2013). This specific theory investigates the biases, tendencies, and behavioral experiences of human beings to a large extent while making economic decisions (e.g. purchase decisions) (Thaler, 1980). The topic combines the factors connected to the fear of loss and might be considered as risks affecting to Consumers' purchase intentions. Many behavioral economists claim that humans carry loss aversion and an overwhelming fear might cause consumers to behave irrationally and lead to negative biases. Furthermore,

the consumer's decision-making process requires numerous levels and aspects that consumers must take into account before making a purchase, which are evidently outlined in the Howard – Sheth's model of consumers' decision-making process. While frequent, low-to-moderate engagement purchases skip many intermediate steps in the model; high-engagement purchases tend to require consumers to do extensive research, gather information, and seek to understand the products/services in advance (Sivakumar et al., 2021). The Howard – Sheth's model has proved the accuracy of a large quantity of variables linked in the relationships to cover most aspects of the purchase decision. This study focuses on the formation process of Consumers' condominium purchase intention in which condominiums refer to long-term, high-value commodities, and Consumers' condominium purchase intention is often considered buying activities with high engagement due to its dependence on consumers' psychological, socioeconomic, and demographic conditions. Therefore, the topic adds to TPB the relationships between inputs in the form of stimuli of Attitudes toward consumer buying behavior.

Thus, the Theory of planned behavior is applied as a theoretical foundation of the topic to explore the relationships between the factors of Attitude toward buying behavior, Subjective norms, Perceived behavioral control, and Consumers' condominium purchase intention. Additional structures from the application of Howard–Sheth's model to examine the stimulus as a premise of Attitude toward behavior, applying behavioral economic theory to test the factors consistent with Perceived risk and economic advantages, which consists of the relationships between product attributes groups, market factors groups, Subjective norms affecting Attitude toward buying behavior, the Perceived risk – Attitude toward buying behavior relation, Perceived behavioral control and Consumers' condominium purchase intention.

2.3. Research model

The theoretical model consists of additional structures to TPB as shown in Figure 2.1. A total of fourteen constructs are involved along with the moderator and control variables.



Hình 2.1: Theoretical Framework

CHAPTER 3

RESEARCH DESIGN

3.1. Research process

Step 1: Research problem identification → Step 2: Research problem description → Step 3: Research overview, component analysis, formulating research hypothesis and model → Step 4: Qualitative research → Step 5: Quantitative research (Preliminary quantitative research, formal quantitative research) → Step 6: Data analysis → Step 7: Research result discussion and managerial implication.

3.2. Qualitative research

3.2.1. Experts and manager's method

A total of 11 people participated in an in-depth interview, which was divided into two main groups: the first group included three experts who are lecturers in the field of Business Administration; the second group consisted of two state officers whose expertise is real estate and seven real estate managers in Ho Chi Minh City. Face-to-face interviews were implemented.

The in-depth interview results provided by the lecturers showed that the concept of condominium purchase intention, extended TPB application, independent variable, intermediate variable, moderator variable, control variable, dependent variable, the measurement scales of variables, and the research model was suitable. Meanwhile, the in-depth interview results of the state officers and managers stated that the type of condominium was apparently categorized and recognizable by the consumers. The experts agreed with the factors and measurement scale suggested by the author. In addition, according to the managers, it was highly recommended that the terminology of Service should be replaced with Service in commercial condominium to avoid confusion.

3.2.2. In-depth group discussion method

There were 15 consumers who were well-informed about condominiums were randomly selected to participate in a group interview. The discussion was conducted in the form of questionnaires. The results of

the in-depth group discussion showed that the participants could distinguish condominiums from apartments. Most of the participants proposed that project facilities, location, environment, housing market, urbanization and population rates, and perceived risk affecting their intentions to buy condominiums. Beside the results from the participants, the author determined the scales of moderator and control variables by collecting information from the in-depth group interview.

3.2.3. Consumer trial survey

A trial survey was made for 15 consumers using a randomized method and direct interviews. The results showed that most of the respondents could comprehend the observed variables of the factors. After the examination with the lecturers, the consumers' honesty is confirmed. The survey was conducted properly and the responses of each consumer were relatively consistent.

3.2.4. Measurement scale's evaluation and adjustment:

Having conducted the qualitative research and consulted with the experts who are lecturers, the author agreed to adjust the scales. Through the results of qualitative research, the factors predicted to have a relationship with the intermediate variable are the attitude towards condominium buying behavior, perceived behavioral control, and the dependent variable is the intention to buy condominiums. Therefore, the hypotheses and research model after qualitative research of the thesis remain as proposed.

3.3. Quantitative research

3.3.1. Preliminary quantitative research

❖ **Questionnaire construction process:** Selecting and inheriting the observed variables of previously relevant studies to measure independent, intermediate, and dependent factors. The questionnaire was designed on a seven-point Likert scale (1: completely disagree; 2: strongly disagree; 3: disagree; 4: undecided; 5: agree; 6: strongly agree; 7: completely agree). The questionnaire was sent to 15 sample respondents and experts to ensure that the content of the questionnaire would not be misleading, confusing, or incorrect. The questionnaire will be completed after receiving the constructive feedback of the 15 respondents.

❖ **Sample size for preliminary quantitative research:** Having used Cronbach's alpha coefficient method during preliminary quantitative research, the author chose a sample $n=90$ to ensure the size is larger than the minimum one ($n=30$). The sample units were selected according to a convenient, non-probability sampling method.

❖ **Measurement scale's preliminary evaluation results:** Preliminary test results of measurement scales' reliability showed that Cronbach's Alpha of the factor has the smallest value of 0.803 and the largest value of 0.915. Additionally, the observed variable has the smallest total variable correlation coefficient of 0.541 and the largest one is 0.836. Furthermore, if the observed variable in each measurement scale is removed, the Cronbach's Alpha of a particular factor will not increase. Thus, the measurement scale of each factor is believed to be an efficient scale that should remain the same.

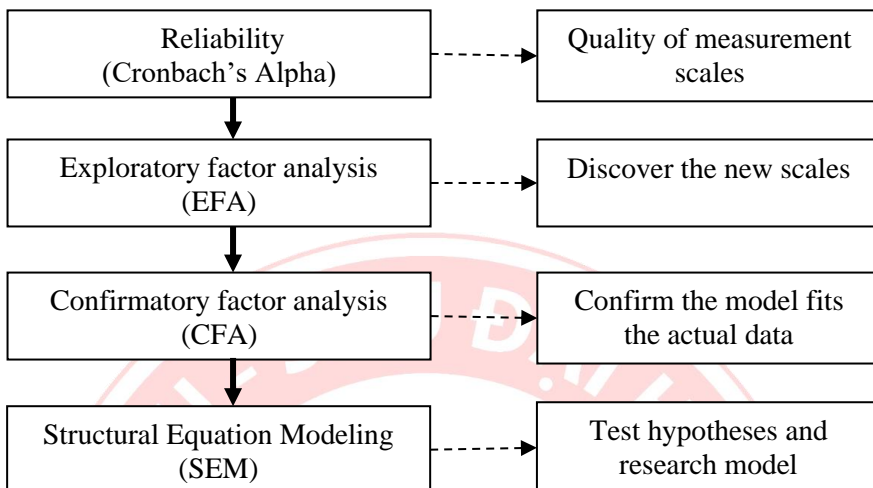
3.3.2. Formal quantitative research

❖ Sample size and sampling methods

As for the studies applying CB-SEM with a number of factor groups greater than 7 factors, each group in which more than 3 observed variables with total variance explained as low as 0.4 results in a minimum of 500 observations (Hair et al., 2010). In the case of the condominiums' purchase intention study in Ho Chi Minh City, the population cannot be determined because the author was not clearly informed of the number of consumers who intend to buy condominiums. As a result, the reliability of 99%, the sample size estimation ratio of $p = 0.5$, and the measurement error ± 0.05 are included in determining the sample size. Therefore, the minimum sample size of the research is 664 participants. In this topic, the author built a sample of 850 observations to avoid possible damage or loss during practical investigation.

The survey sample is selected by non-probability sampling method and the sampling technique is convenient. There are 07 investigators who are managers in the list of experts and 05 investigators who are real estate brokers assisting in collecting consumers' survey data.

❖ Data analysis process



CHAPTER 4

RESEARCH FINDINGS ANALYSIS AND DISCUSSION

4.1. Cronbach's Alpha EFA and CFA index

Table 4.1. Reliability of the scales

Variables	Items	Cronbach's Alpha	Corrected item-Total correlation	Factor loading	CR	AVE
Project Facilities (TI)	TI1	0,864	0,714	0,759	0,864	0,560
	TI2		0,676	0,732		
	TI3		0,650	0,726		
	TI4		0,670	0,747		
	TI5		0,711	0,774		
Location (VT)	VT1	0,910	0,830	0,871	0,882	0,651
	VT2		0,737	0,776		
	VT3		0,826	0,871		
	VT5		0,817	0,889		
Environment (MT)	MT1	0,883	0,736	0,791	0,883	0,602
	MT2		0,728	0,781		
	MT3		0,719	0,736		
	MT4		0,695	0,783		

Variables	Items	Cronbach's Alpha	Corrected item-Total correlation	Factor loading	CR	AVE
Condominium features (DD)	MT5	0,841	0,715	0,772	0,849	0,530
	DD1		0,662	0,740		
	DD2		0,650	0,742		
	DD3		0,632	0,694		
	DD4		0,654	0,691		
Price and credit (TC)	DD5	0,882	0,627	0,712	0,882	0,651
	TC1		0,734	0,797		
	TC2		0,747	0,813		
	TC3		0,751	0,814		
Condominium services (DV)	TC4	0,893	0,739	0,784	0,893	0,626
	DV1		0,739	0,789		
	DV2		0,725	0,781		
	DV3		0,738	0,793		
	DV4		0,751	0,810		
Housing market (NO)	DV5	0,891	0,736	0,780	0,891	0,673
	NO1		0,768	0,850		
	NO2		0,767	0,828		
	NO3		0,762	0,808		
Urbanization and Population Pressure (DS)	NO4	0,868	0,744	0,784	0,867	0,686
	DS1		0,750	0,828		
	DS2		0,748	0,831		
Perceived risk (RR)	DS3	0,868	0,744	0,834	0,868	0,623
	RR1		0,724	0,815		
	RR2		0,753	0,832		
	RR3		0,720	0,780		
Attitude toward behavior (TD)	RR4	0,895	0,681	0,725	0,895	0,681
	TD1		0,745	0,742		
	TD2		0,779	0,802		
	TD3		0,767	0,832		
Subjective norms (CQ)	TD4	0,861	0,777	0,838	0,865	0,518
	CQ1		0,750	0,804		
	CQ2		0,632	0,679		
	CQ3		0,607	0,652		
	CQ4		0,680	0,764		

Variables	Items	Cronbach's Alpha	Corrected item-Total correlation	Factor loading	CR	AVE
Perceived behavioral control (KS)	CQ6	0,886	0,645	0,657	0,887	0,611
	CQ7		0,629	0,732		
	KS1		0,758	0,816		
	KS2		0,710	0,741		
	KS3		0,731	0,771		
	KS4		0,722	0,794		
Purchase intention (YD)	KS5	0,875	0,707	0,741	0,877	0,587
	YD1		0,693	0,680		
	YD2		0,718	0,755		
	YD3		0,682	0,682		
	YD4		0,694	0,733		
	YD5	0,739	0,819			
KMO		0,910	Initial Eigenvalues		1,117	
Sig. (Bartlett's Test of Sphericity)		0,000	Cumulative (%)		62,08	

Source: Calculated from survey data of 793 consumers who intend to buy commercial condominium in Ho Chi Minh city in 2022.

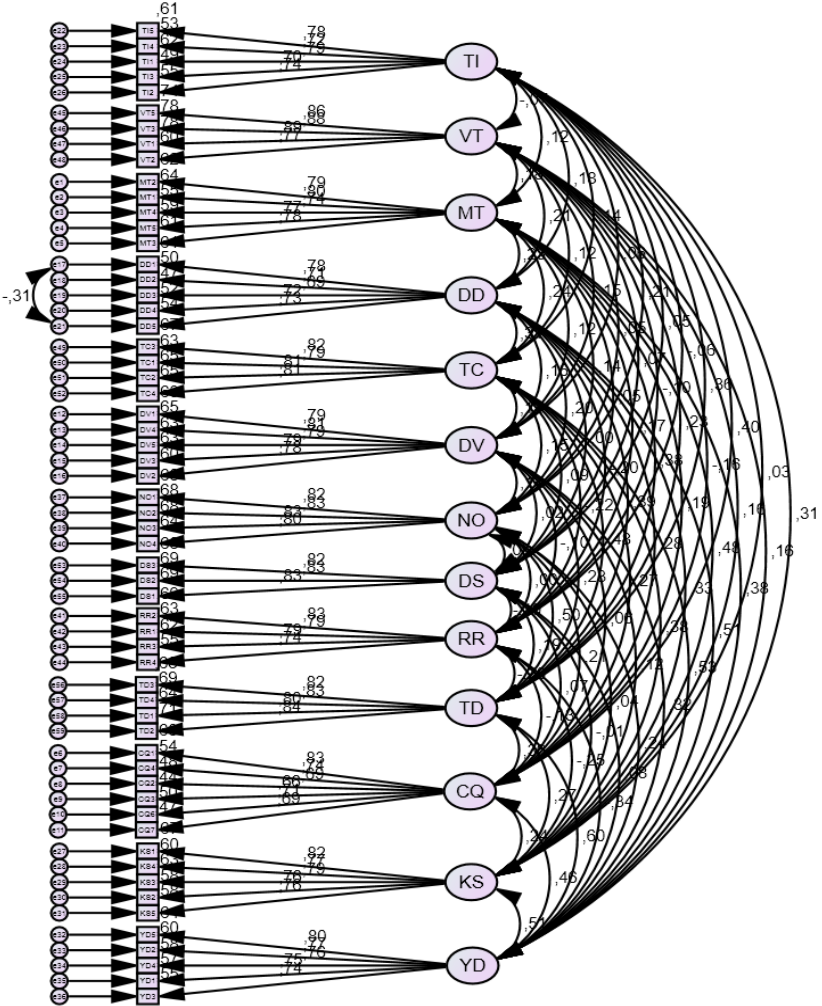
4.2. Testing the fit of SEM

Table 4.2. The fit of SEM

Name of category	Name of index	Index value	Comments
Absolute fit	Chi-square	P = 0,000	The required level is achieved
	RMSEA	0,023	The required level is achieved
	GFI	0,913	The required level is achieved
Incremental fit	AGFI	0,904	The required level is achieved
	CFI	0,973	The required level is achieved
	TLI	0,971	The required level is achieved
	NFI	0,916	The required level is achieved
Parsimonious fit	CMIN/DF	1,430	The required level is achieved

Source: Calculated from survey data of 793 consumers who intend to buy commercial condominium in Ho Chi Minh city in 2022

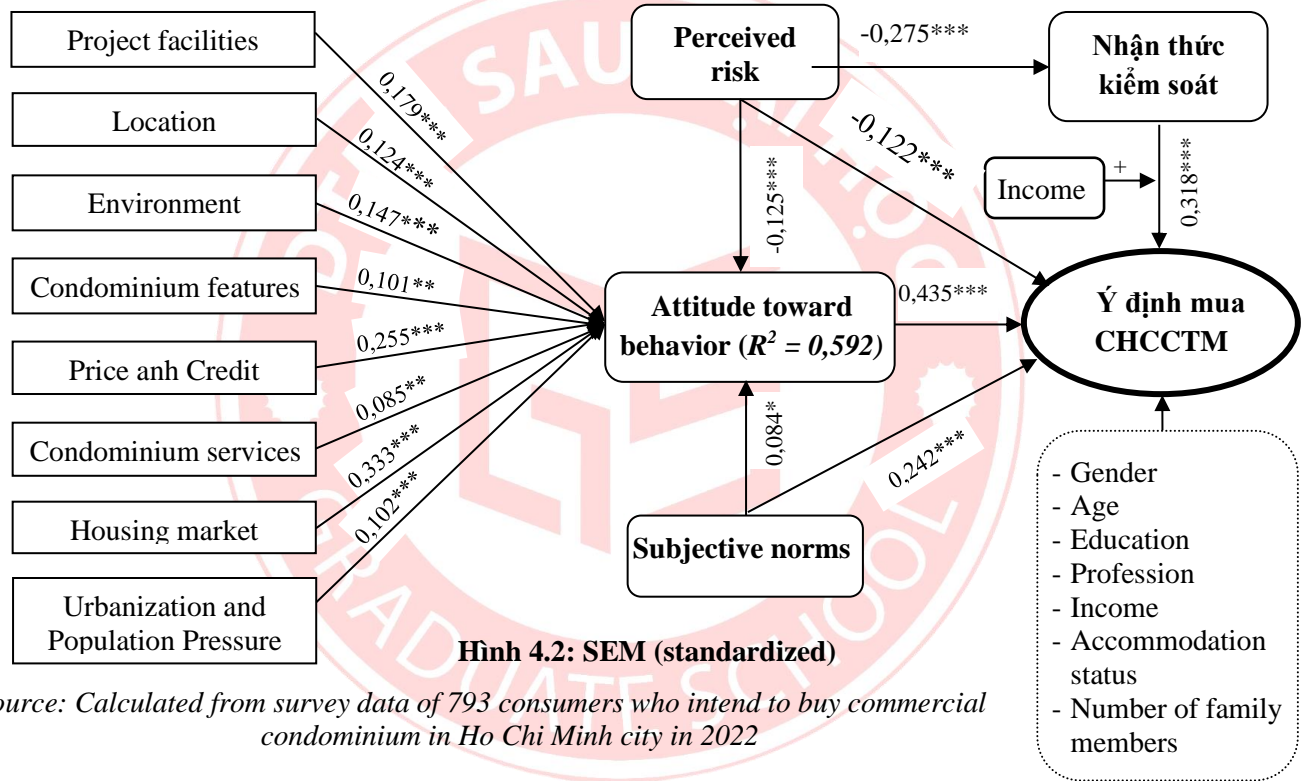
CMIN/DF = 1,232; P=,000; RMSEA =,017;
 GFI=,924; AGFI =,914; CFI=,986; TLI=,984; NFI=,928



Hình 4.1: CFA (standardized)

Source: Calculated from survey data of 793 consumers who intend to buy commercial condominium in Ho Chi Minh city in 2022

4.3. Test hypotheses and research model



Hình 4.2: SEM (standardized)

Source: Calculated from survey data of 793 consumers who intend to buy commercial condominium in Ho Chi Minh city in 2022

4.4. Standardized Indirect Effects-Two Tailed Significance (BC).

Table 4.3. Standardized Indirect Effects-Two Tailed Significance (BC)

Variables	TD	KS	YD		
	β_{direct}	β_{direct}	β_{direct}	β_{indirect}	B _{total}
TD	0	0	0,435**	0	0,435**
KS	0	0	0,318**	0	0,318**
CQ	0,084*	0	0,242**	0,037*	0,279*
RR	-0,125**	-0,275**	-0,122**	-0,142**	-0,264**
NO	0,338**	0	0	0,147**	0,147**
TC	0,255**	0	0	0,111**	0,111**
TI	0,179**	0	0	0,078**	0,078**
MT	0,147**	0	0	0,064**	0,064**
VT	0,129**	0	0	0,056**	0,056**
DD	0,101*	0	0	0,044*	0,044*
DS	0,102**	0	0	0,044**	0,044**
DV	0,085*	0	0	0,037**	0,037**

Ghi chú: ** $P < 0.01$; * $p < 0.05$

Source: Calculated from survey data of 793 consumers who intend to buy commercial condominium in Ho Chi Minh city in 2022.

4.5. Moderating variable

Table 4.4. The effect of perceived behavioral control on the purchase intention for each income group

Income group	Structural path		$\beta_{\text{standardized}}$	S.E.	C.R.	P	Decision
Low income consumers	KS	---> YD	0,394	0,050	6,934	***	Accepted
High income consumers	KS	---> YD	0,268	0,031	6,312	***	Accepted

Source: Calculated from survey data of 793 consumers who intend to buy commercial condominium in Ho Chi Minh city in 2022.

4.6. Multigraph structural analysis

There is no difference in the impact relationship of variables in the model among respondents with different genders and occupations. There is a difference in the impact relationship between the variables in the model among the groups of respondents with different ages, academic levels, income, housing status, and demographics.

4.7. Research result discussion

The research results strengthen the idea that TPB is an appropriate theoretical model to study the factors affecting consumers' condominium purchase intention, which suits the studies of Islam et al. (2022) and Numraktrakul et al. (2012). However, the results are contradictory to the studies of David et al. (1989) and Lewis et al. (2003) which leave no evidence of a notable relation between subjective norms and purchase intention. A similar contradiction is found between the results and the studies proposing that perceived behavioral control has no impact on purchase intention (Yusliza & Ramayah, 2011; Wibawa et al., 2015; Zhang et al., 2018). Moreover, new structures and directories added in this research's TPB are statistically significant, which is consistent with the assumption that TPB can be studied in depth and extended by including new structures or replacing directories of internal variables (Ajzen, 1991; Perugini and Bagozzi, 2001; Islam et al., 2022).

CHAPTER 5

CONCLUSION AND MANAGERIAL IMPLICATION

5.1. Conclusion

Comprehending the factors affecting Consumers' condominium purchase intention is the key to the success of condominium infrastructure project developers. The topic aims at studying the predictive factors of Vietnamese consumers' intention to buy condominiums in Ho Chi Minh City from which a managerial implication will be taken to help real estate enterprise managers take measures to attract future condominium owners in Ho Chi Minh City. The research model and hypotheses are based on the basis of TPB in which TPB is applied in studying the Consumers' condominium purchase intention and the Intention to perform such

behavior is determined according to the Attitude toward behavior, Subjective norms, and Perceived behavioral control. This shows that Consumers' condominium purchase intention is a rational, well-planned, and detailed thinking process. In other words, before the final purchase is made, the consumers proactively learn and systemize the information for analysis as well as prepare necessary recourses to consciously perform buying behavior. Moreover, other determinants relevant to the research context were identified by an extensive literature review, which was subsequently assessed by industry experts. Specifically, TPB was extended to predict Consumers' condominium purchase intention by combining it with Howard-Sheth's model to examine the stimulating factors playing as a premise of Attitude toward buying behavior. Based on an overview of literature review and qualitative research, the topic examines the influence of product attributes (project facilities, location, environment, condominium features, price and credit, and services in the condominiums), market factors (housing market, urbanization and population pressure), the Subjective norm factors affecting Consumers' condominium purchase intention via the intermediate factor which is Attitude towards buying behavior. Furthermore, the author applied behavioral economic theory to consider factors related to economic benefits, which will later extend TPB to anticipate Consumer's condominium purchase intention. Meanwhile, perceived risk factors were added to the research model to test the direct or indirect relationship between the hypotheses and Consumer's intention to buy condominiums through intermediate factors of Attitude toward buying behavior and Perceived behavioral control. The study also examines the moderator role of Income toward the impact of Perceived behavioral control on Purchase intention and the difference in Consumers' condominium purchase intention regarding individual characteristics in Ho Chi Minh City.

A total of 14 structures were identified based on TPB extension and 16 hypotheses were proposed. A questionnaire was conducted with the participation of the consumers who are looking for as well as capable of and willing to buy a condominium in Ho Chi Minh City. The samples were selected according to a convenient, non-probability sampling method with a total of 793 responses collected for data analysis (most of the respondents

do not own a house). During the research, CB-SEM was employed to test the hypotheses and the suggested research model. The research model is stated to be appropriate to the survey data. The results show that the structures mentioned in TPB are accepted in which Attitude toward buying behavior is classified as the most crucial factor to Consumers' condominium purchase intention followed by Perceived behavioral control and Subjective norms respectively. It is important to note that product attributes, market factors, and Subjective norms have an indirect and positive impact is found on Consumers' condominium purchase intention through Attitude toward buying behavior. For this reason, the Housing market has the most powerful influence on the Attitude toward buying behavior, followed by Price and credit, and project facilities etc. The results have also shown that Perceived risk as an additional structure has a direct reverse impact on Consumers' condominium purchase intention and an indirect reverse impact on Consumers' condominium purchase intention through Perceived behavioral control and Attitude toward buying behavior. Therefore, Attitude toward buying behavior and Perceived behavioral control play an important role in stimulating Consumers' condominium purchase intention. The research results also explain how Perceived risk affects Consumers' condominium purchase intention.

Another important point is that Income has a moderating effect on the cause-effect relationship between Perceived behavioral control and Consumers' condominium purchase intention. The moderator variable is proven the total moderator variable in which the impact of Perceived behavioral control on Consumers' condominium purchase intention is displayed more significantly in low-income groups than the high-income ones. The test results of the difference in Consumers' condominium purchase intention by individual characteristics showed that age, academic level, income, housing status, and demographics are different among the variables' impact relationships. In contrast, gender and occupation show no difference in the impact relationships of variables.

A thorough understanding of the factors affecting Consumers' condominium purchase intention is vital to real estate enterprise managers since the findings of the research might be useful in producing solutions to meet the expectations of Consumers buying condominiums. Besides, the

competitiveness and sustainability of Vietnam's real estate can be enhanced through practical activities. The topic has contributed to the scientific literature by presenting an extended TPB model suitable for studying the Consumers' condominium purchase intention in a developing country.

5.2. Contributions of the topic

Regarding the research findings, the topic has academically and practically contributed to the industry. In terms of academics, the research provides an appropriate model to study Consumers' condominium purchase intention in Vietnam and developing countries by extending the Theory of planned behavior. It can be said that the findings of this topic are new knowledge to the academic field, especially the inclusion of Perceived risk structure to assess the formation process of Consumers' condominium purchase intention. It can be affirmed that the research results are meant to fill the erudite gap in the process of building Housing purchase intention among Consumers. In fact, the previous studies concentrated on the product attributes when the Consumers' housing purchase decision-making process is assessed while this topic is concerned with internal and external factors measurements from the inside out. In addition, this research provides new knowledge to science when evaluating the process of forming Consumers' condominium purchase intention based on extended TPB that includes Perceived risk structures, product attributes, and market factors. The extended TPB as a replacement for the original TPB model seems to be more appropriate to the circumstance. Having established a model to deeply learn behavioral intention, this topic remarkably contributed to the scientific literature.

In the matter of practical contribution: Actual assessment of the formation of consumers' intention to purchase commercial condominium in Ho Chi Minh city by specifically pointing out the direction and level of impact of each factor on purchase intention. In addition to the structures mentioned by the theory of planned behavior, the results show additional structures: attribute factors (project facilities, location, environment, condominium features, price and credit, services in condominium), market factors (housing market, urbanization, and population pressure), and perceived risk. Furthermore, the mediating role of attitude towards

behavior in the relationship between product attributes, market factors, perceived risk, and Subjective norms with purchase intention, and the mediating role of perceived behavioral control in the relationship between perceived risk and purchase intention. In particular, the impact of perceived behavioral control on consumers' intention to purchase commercial condominiums was stronger in the low-income group than in the high-income group. The assessments and conclusions drawn will have reliability and practical value, creating an objective and comprehensive basis for real estate business managers.

This thesis has provided implications to contribute to increasing the number of consumers' intentions to purchase commercial condominiums in Ho Chi Minh City, thereby helping real estate businesses maintain and improve competitiveness. These implications are also a reference source for policymakers to create a standard institutional environment to promote the sustainable development of the commercial condominium market.

5.3. Managerial implications

First, the enterprises should focus on the strategies that positively impact Consumers' purchase attitude. In particular, changing emotional factors through promotional and informational programs. It is evident that changing behavioral factors can lead to switches in emotions and cognitions according to the principles of operant conditioning theory (Skinner, 1957). Changing cognitive factors, building market segmentation strategies, and product development are highly recommended. In order to improve the Consumers' Attitude toward buying behavior, real estate enterprise managers can apply the following two strategies to take advantage of market opportunities and improve product attributes.

❖ Market penetration strategy

As residential land prices are becoming intensively expensive exceeding the financial capabilities of many residents along with scarce land funds, a "golden" opportunity has arisen for condominium development. Housing prices in the central areas are climbing rapidly forming a trend of shifting housing demands from the central area to neighboring areas. Therefore, the State needs to create a "clean" land fund which is capable of connecting modern social and technical infrastructure systems to develop apartment buildings and reduce urbanization pressure

in the central areas. The enterprises need to employ a market development strategy to effectively exploit real estate industry trends as well as consumers' preferences that are changing due to market factors.

❖ **Product development strategy**

- **About the selling price and credit:** The state implements debt-to-income restrictions which can be used as a tool to prevent a rise in housing prices in general. The condition of available condominiums should be improved to reduce the imbalance between supply and demand in condominiums, the government should provide sufficient land area for condominium construction and ensure the period of providing legal procedures for investments. Diversifying payment policies combined with attractive loan policies from corporate banks including low-interest rates, and grace period support are strongly advised.

- **About the Condominium utilities:** The enterprises develop project development strategies with an appropriate scale to provide community amenities with market consumption capacity and implement precinct/divergence to optimize investment efficiency in creating project image and community support. Developing project subdivisions with an appropriate scale with synchronous amenities will attract customers and ensure project cash flow.

- **About the Condominium environment in the vicinity:** The importance of a safe, clean neighborhood should be considered when choosing the area to implement the Condominium's construction project. Condominium projects' capabilities are compulsory, which should provide residential amenities such as clean lakes or green trees. Environmental management is essential to enhance condominiums' values and unite the community through green spaces.

- **About the Condominium location:** The state and enterprises are required to implement a long-term vision of urbanization, and prioritize the land fund for building condominium areas which have traffic connection with regional links and technical infrastructure of the city. Creating an on-site service and employment ecosystem will help residents avoid long-distance travel to the central area for work.

- **About the Condominium features:** The design should be appropriate for the potential customer target, and the condominiums'

features should be clear to optimize usable area, flexible space layout, feng shui-friendly, and stunning views. Applying the quality management system in construction according to ISO 9001:2015 standards to ensure the quality of condominiums. Operating virtual reality technology (VR) in the Condominium industry might be a cost-saving method in building showrooms, and sales and marketing sectors for consulting remote consumers.

- **About the service(s) in condominiums:** Improving the service delivery of available staff and enhancing their sense of service to provide consumers with personalized services. The state needs to enact detailed condominium laws from which households in Ho Chi Minh City are required to set up a condominium ownership and management company in the form of a joint stock company or a multi-member limited liability company (the residents decentralize the shares based on the living area ratio of each household). This company owns the whole building privately and collectively, which can be managed by itself or by a professional management unit.

Second, the enterprises need to build a cooperation strategy with banking institutions to provide suitable financial services to target customers. Providing information through multiple channels such as on-site channels, social media, social networks, and virtual reality (VR) technology, etc. to diversify information provision and updates.

Third, consumer-led information generation strategies build trust when a product is considered. Building a friendly brand reputation and having good product quality is an advantage of subjective standards at all times.

Fourth, enterprises should make every endeavor to provide sufficient information to potential customers with the aim of expanding their prior subjective knowledge. An increased level of subjective prior knowledge reduces the customer's perceived risk.

Fifth, enterprises can target their market based on Consumers' income levels and come up with different strategies for each income level to increase customer satisfaction.

Sixth, enterprises are advised to build marketing and communication strategies focusing on target customers who have the highest level of explanation for variation in purchase intention of condominiums.

5.4. Limitations and future research directions

There are several limitations that should be considered in the future. First of all, the research data was collected from a survey conducted in Ho Chi Minh City during a “new normal” period (manufacturing and business were limited due to the pandemic), the topic has not generalized the research results for the entire scenario in Vietnam. As a consequence, different cases might occur due to the distinctive locations, survey subjects, market needs, product attributes, and transformed mindsets among the consumers after a period of social distancing. Therefore, a survey of different cities under the jurisdiction of the Central Government in Vietnam during the normal socio-economic period is highly recommended. It would be useful to expand the respondents' hometowns to compare the cultural influence on housing purchases of consumers with different origins. Secondly, respondents in the research should be limited to the consumers who buy condominiums for residential purposes. For this reason, the future study might reach those who intend to buy condominiums for investment and/or for rent. The research results in the future are expected to be compared with the present ones, which can be beneficial to enterprises. Thirdly, the Condominiums' purchase intention in the topic is measured and not equal to the practical buying behavior. The gap between Intention and Behavior was confirmed. Thus, the development of the Condominium market has driven Consumers who have realized the Condominium's benefits to buy one for themselves. Investigation elements can be interesting, for example, the appropriate types of marketing and social media can drive customers' demands. Furthermore, the factors related to legal policies on investment, finance, and taxes related to real estate are not taken into account. Therefore, future research may further investigate these factors. In conclusion, the topic only focused on Consumers' condominium purchase intention. Future studies aim to understand in detail the Consumer's purchase intention for each specific type of housing such as apartments, villas, commercial buildings, and social housing.

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