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FACTORS AFFECTING THE DERIVATIVES INVESTMENT INTENTION OF INDIVIDUAL INVESTOR: A CASE STUDY IN VIETNAM

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In this research, PLS-SEM method was applied to assess the relationship between the original determinants of Theory of Planned Behavior including Attitude, Social Norms, Perceived Behavioral Control together with expanded variables of Past Experience, Perceived Risk, and Financial Literacy to explain derivatives investment intention in Vietnam. The paper also applies PLS-MGA method to test the effect of income demographic factor on the differences in the relationship between the latent variables. The research outcomes reveal that most of the determinants except Social Norms have statistical impacts on the intention, and an MGA analysis shows that there is a statistical difference in the influence of financial literacy between high income and low income groups.

Keywords: Behavior, PLS-SEM, TPB, PLS-MGA, Derivatives.

1. Introduction

Vietnam's financial market has undergone 20 years of development and has reached maturity to form high-end and highly complex financial markets, i.e. derivatives market. With an increasing number of investors entering the derivative market, and plans to continue trading new derivative products, apart from VN30 futures product in 2017, it can be said that the derivative market begins to penetrate into the system and well received. The number of 47 million derivative contracts traded within 3 years shows the strong growth of the market, but this figure also shows the fact that the Vietnamese financial market in general and the derivatives market in particular have a relatively high proportion of individual investors. Information from the HNX shows that the proportion of individual investors in January 2020 accounted for 84.25%, and was a decrease compared to the previous time. The noteworthy point is that the derivative market is a high-level financial market, with high complexity and risk, so for individual investors, participation in this market will contain a noteworthy risk factors.

For this reason, the assessment of the determinants of the individual investors' intention to participate in derivative securities investment on the Vietnamese derivative market has important implications, helping to understand the factors that motivate investors' intentions, from which appropriate management and behavioral measures could be proposed.

When studying behavioral intent, the classical research model with high applicability is Theory of Planned Behavior (TPB) developed by (Ajzen, 1991). This theory has been tested over time and many different studies, showing the ability to explain well for behavioral intent. This study applies the expanded TPB theory, with the addition of a number of factors outside the classical TPB theory to be more suitable for the derivative market in Vietnam in the current period, to identify the Factors that affect the intent to invest in derivative securities. In addition, for the purpose of determining the intermediate effects of the mediating factors, and the different effects of demographic subgroups, the study uses PLS-SEM and PLS-MGA statistical

techniques to verify the mediating effect of the Attitude factor, and the difference between the High-Income and the Low-Income groups.

2. Literature Reviews

2.1. Theory of Planned Behaviors

Alongside common behavioral explanations such as TRA, TAM, UTAUT... TPB, developed by (Ajzen, 1991), built on factors including Perceived Behavioral Control, Attitudes toward Behavior and Subjective Norms. The Perceived Behavioral Control factor reflects the ease with which a user performs the behavior, which depends on the availability of resources and opportunities to perform the behavior, the Attitude factor shows basically a person is positive or negative for a behavior, and Subjective Norm factor shows the impact of society on the individual's behavior. The TPB framework has been studied and expanded with the addition of many other explanatory factors, so in each context, the TPB will be appropriately used to explain behavioral intent in that proper context.

2.2. Research regarding factors affecting derivatives investment intention

ATT-Attitude towards behavior

Attitude refers to users' subjective reviews and personal tendencies related to certain products or services as defined by (Hu et al., 2019). (Lee, 2009) investigated the intention to adopt an online transaction in Taiwan using a TPB model. With data from 338 customers, attitude was found to be one of three factors that positively influences intent to use online transactions.

Attitude may also play a role as a mediator according to the results of many studies. (Ali, 2011b) cites three factors affecting individual investors' investment intentions: risk perception, income perception and confidence, in which attitude acts as an intermediary of all three groups of these factors. Lim et al. (2018) find the mediating role of risk attitudes and perceptions in the relationship between financial knowledge and investment intentions in Malaysia. Research by (Ali, 2011a) also demonstrates the mediating relationship of attitude in investing in a given stock.

SN-Subjective Norms/Social Norms

According to (Ajzen, 1991), Subjective Norms refer to social pressure about performing or not per-

forming behavior. (East, 1993) argues that subjective norms are based on prominent beliefs, called the normative beliefs of those of importance to the respondents who think that respondents should or should not perform the act. Many studies have changed subjective norms into social norms to better reflect the impact of society on individual behavior. Phan et al (2019) designed an expanded TPB model consisting of eight structures to find out the factors affecting the intention to use international bank cards of Vietnamese customers, the study indicates subjective norms is the most important factor directly affecting customer intentions with a path loading of 0.258. In contrast, in the study of (Shanmugham and Ramya, 2012) and (Hermuningsih et al., 2018), subjective norm is believed to have no significant effect in predicting the trading behavior of personal investment.

PBC-Perceived Behavioral Control

According to (Ajzen, 1991), Perceived behavioral control describes how easily or difficult an individual feels when performing a particular behavior, perceived behavioral control is influenced by the availability of the opportunity or resource to help the individual perform the behavior. Research by (Madden et al., 1992) shows that perceptions of behavioral control are the most important factor in predicting behavioral intent. (East, 1993) concludes that friends, family and information related to investment returns and security have the strongest impact on investment decisions of individual investors in the UK.

PE-Past Experiences

Bagozzi and Kimmel (1995) and Sutton and Hallett (1989) found that with the addition of the Past Experience factor, the explanation level of the TPB model for the prediction of customer behavioral intent increases. The study of (East, 1993) also added the Past Experience variable to the TPB model and emphasized the direct effect of Past Experience on behavioral intention while (Sheeran et al., 2017) found the reverse effect of past experience on behavioral intentions. According to Phan et al (2019), customers who have previously had experience, especially experience in contact with the international environment, are more willing to accept international bank cards.

PR-Perceived Risk

In addition to TPB, in behavioral research patterns, especially TAM, when customers participate in an activity or purchase or use a service that is novel, a very important factor influences the behavioral intent is the perception of risk.

The study of (Finucane, 2002) transferred the concept of risk perception from research on new technologies to risk perception in securities investment. This study described how an investor can be affected by the dimensions of risk and offers a number of suggestions for portfolio improvement using a qualitative, multidimensional approach. (Alleyne, 2011), in addition to using traditional TPB model, incorporated a risk-taking factor to predict future product investment behavior. Among the factors that explain investment intent, the risk factor plays an important role.

Lai and Tam (2012) studied how professional investors perceive and react to investment risks. Research results showed that higher levels of education lead to lower levels of risk avoidance, and higher incomes, lower levels of confidence in taking risks. Khitoliya (2014) assessed the level of risk perception of investors applied to the context of mutual funds in Delhi and provides an analysis of risk perception and the relationship with investment decisions mutual fund of Indian investors.

According to (Trang and Tho, 2017), risk perception has a direct and positive impact on investment results and intention to participate in investment. Using the questionnaire study combined with in-depth interviews, the research results showed that risk perception affects both the above factors and the results are statistically significant. Focusing on the complex relationship of financial decision-making, Lim et al. (2018) assessed the impact of financial knowledge on investment intentions in Malaysia, using attitudes and risk perception as an intermediate variable. Research results showed a strong mediating effect of investment perception and attitudes on the relationship between financial knowledge and investment intentions. Akhtar and Das (2019) applied a TPB framework to evaluate the investment intentions of potential individual investors in India. This study further expands TPB with financial literacy factors and personal charac-

teristics (including risk-taking and innovation prioritization). The results of the study showed that the attitude factor plays a partially mediating role in the relationship between financial knowledge and investment intent, while financial capacity plays a dual role in the relationship between individual characteristics and investment intentions.

LIT-Financial Literacy

Financial literacy, expressed through objective financial literacy, a financial literacy score by standard tests and subjective financial literacy, a financial literacy score by self-assess of understanding level with a system of financial variables. This is also an important factor determining behavior related to finance and investment, which has been confirmed in many studies.

Al - Tamimi (2009) assessed the level of financial literacy of UAE individual investors in the domestic financial market, along with the relationship between financial literacy and other factors with investment decisions. The research results showed that the level of financial literacy is much different from the necessary level and the relationship between financial literacy and investment decisions is statistically significant. According to (Bhushan, 2014) financial literacy helps individual investors process financial information and make more accurate decisions. This study focuses on the relationship between financial literacy and individual investors' perceptions of financial products, along with the relationship between financial literacy and their investment behavior. Research results showed that individuals' level of financial literacy affects their perceptions and investment choices.

Glaser and Walther (2014) argued that the behavior of individuals with a high level of financial literacy may depend on the system of thinking: intuition and perception. The research results confirm the hypothesis that if investors in the financial market tend to strongly trust their feelings, the role of financial literacy will be weakened when that investor makes their decisions. The study of Aren and Aydemir (2015) evaluated the impact of factors on investment intentions, in which the most prominent is the risk avoidance factor, in addition the study also assessed the moderating impact of financial knowledge to the relationship between those factors

and the intention to invest. Research results showed that in general, risks are inversely related to investment intentions. There is evidence that financial insights play a role in regulating this relationship. Aren and Zengin (2016) identified the factors influencing the investment choices of individual investors. Character traits have no effect, but risk perception and financial literacy do influence investment choices. In addition, the level of risk perception is influenced by financial literacy.

Sivaramakrishnan et al. (2017) studied the impact of financial insights on investment behavior and intentions in the Indian stock market. Using TPB framework and research according to quantitative investigation method, research showed that objective financial literacy and subjective financial literacy both have an impact on the investment behavior of securities investors. However, only objective financial literacy have an impact on actual investment behavior, which also points to an inverse relationship between wealth and investment intention. The study of (Chu et al., 2017) evaluated the potential impact of financial literacy on household portfolio choices and return on investment. Research results show that families with higher levels of financial literacy tend to invest through experts and investment funds. However, overconfident families tend to invest themselves and keep only one stock. Research results also suggest a positive relationship between financial literacy and income.

Hsiao and Tsai (2018) pointed out the importance of the derivative market for emerging markets. However, the study also showed that the derivative market is considered to be complex for individual investors with limited financial knowledge to participate. The study identified the effect of financial knowledge on the intentions of individual investors to enter the derivative market in Taiwan. This study shows that investors with higher financial literacy will reduce barriers to entry, and are therefore more willing to enter the derivative market.

Income and other Demographic Characteristics

In addition to financial literacy, the demographic variable that has received a lot of research interest, other demographic variables, especially income, can also have an impact on the intention and behavior of investors to invest.

Hallahan et al. (2003) studied the relationship between subjective risk tolerance and a range of demographic characteristics including gender, age, income, and total assets to assess investors' attitudes towards risk. The study results show that there is a nonlinear relationship between income and risk tolerance in the whole sample. A follow-up study (Hallahan et al., 2004) used a database of risk tolerant scores (RTS) to evaluate correlations with demographic traits. The results show that RTS score is positively related to gender, age, number of dependents, marital status, income and total assets. This result implies that people fundamentally are willing to make investments with higher risk when incomes are higher. Ng et al. (2011) analyzed the impact of demographic factors and investment experience on retirement planning intentions. Research results showed that marital status, age and income level affect behavioral intentions. Another factor of significant significance is past investment experience.

Jain and Mandot (2012) found a positive relationship between income and risk tolerance. This study implied that the higher the income earners, the more risk-tolerant people are in investments. Arianti (2018) measured the impact of financial literacy, financial behavior and income on investment decisions. Using primary data, this study did not show a significant effect of financial insights on investment decisions, but financial behavior and income have a significant impact on investment decisions. According to research by (Herawati and Dewi, 2020), millennials have not been strongly involved in investment. This study focused on the impact of demographic variables including financial literacy, gender and income on millennials' investment intentions. The results show that the two variables of financial literacy and income have a positive and positive relationship to investment intentions. Meanwhile, gender does not have a clear effect on investment intentions.

3. Data and Research Methodology

3.1. Research Methodology

The study uses questionnaire investigation method, in which the questionnaire will be designed based on the application of traditional methods and structures from prominent, specific behavioral intent research models, specifically TPB model

based on the characteristics of Vietnam's derivative market, the author proposes three new factors, namely PR, PE and LIT. The questionnaire is designed on a 7-level Likert scale. The author used PLS-SEM method to answer questions about the impact of each factor, the intermediate effects of the mediating factors, and to separate the individual impact and the overall impact of the frontline factors to downstream dependent factor. The study using second generation analysis method Partial least squares structural equations modelling (PLS-SEM, Hair Jr et al. 2016), which is being commonly applied in the world but not popular in Vietnam. In order to evaluate the differences in factors of subgroups, specifically here is income, the author uses PLS-MGA (Multi-Group Analysis of Partial Least Squares) for two subgroups of income: high income and low income.

3.2. Data

The study is based on primary data collected from questionnaires distributed to potential investors in Hanoi and Ho Chi Minh City, data collected from major universities, securities firms and the SSC. Data collection method is a convenient method of collection as the target audience is all potential investors and investors for the futures product, for the reason that this is a new product with limited number and not easily accessible investors. Besides, the study of behavioral intention is also the most suitable for potential investors, ie not really investing, but only planning to invest.

Based on the results obtained and adjusted to remove a total of 07 non-conforming indicators after conducting a preliminary survey through the assessment of the reliability and compliance criteria of the scale with SmartPLS 3.2.9 software, the official survey was sent to the respondents. All the online survey results collected are valid and some paper surveys have been removed due to missing responses, resulting in a total of 486 valid responses. Table 1 shows the demographic characteristics of the respondent. Of the 486 respondents, more than 59% were female and nearly 41% were male, and about 58% of the respondents were students, reflecting the fact that universities were included as one of the main data collection location. Office staff and professional workers such as teachers, doctors,

lawyers... accounted for 41% of the respondents and the rest were freelancers or housewives. Respondents' age is consistent with their job characteristics, with nearly 58% aged 18-22, and more than 33% of respondents aged 23-40. About 45% of respondents earn less than 5 million dong a month, most of them fall into the student group. There were 26 derivative securities investors answered, accounting for 5%.

Table 1: Sample Demographics Characters

Demographic indicator	Number	Percentage
Gender		
Male	196	40.33%
Female	290	59.67%
Job		
Student	281	57.82%
Officer	152	31.28%
Professional work people	50	10.29%
Housewife	2	0.41%
Freelance business and other professions	1	0.21%
Age		
18-22	278	57.20%
23-30	128	26.34%
30-40	34	7.00%
> 40	46	9.47%
Income		
Under 5 million	218	44.86%
From 5 to less than 10 million	97	19.96%
From 10 to less than 20 million	124	25.51%
Over 20 million	47	9.67%
Investing in derivative securities		
Yes	26	5.35%
No	460	94.65%

Source: Summarized by the author

Table 2 describes how the study variables and indicators are encoded:

Table 2: Latent Variables with Codes and Indicators

Latent Variable	Code	Indicators
Investment Intention	INT	INT1, INT2, INT3
Attitudes	ATT	ATT1, ATT2, ATT3
Perceived Behavioral Control	PBC	PBC1, PBC2, PBC3
Social Norms	SN	SN1, SN2, SN3
Perceived Risk	PR	PR1, PR2, PR3
Past Experiences	PE	PE1, PE2, PE3
Financial Literacy	LIT	LIT1

Source: Summarized by the author

3.3. Hypotheses and Research Framework

Based on literature reviews, the paper makes assumptions about the relationship between the dependent variables and the independent variable in the model as follows:

- Hypothesis H1: Attitude has a positive correlation with the Intention to invest in derivative securities

Hypothesis H2: Perceived Behavioral Control has a positive correlation with the Intention to invest in derivative securities

- Hypothesis H3: Social Norm has a positive relationship with the Intention to invest in derivative securities

- Hypothesis H4: Past Experience is positively correlated with derivative securities investment Intention

- Hypothesis H5:

H5a: Financial Literacy is positively correlated with derivative securities investment Intention

H5b: Attitude mediates the relationship between Financial Literacy and derivative securities investment Intention

- Hypothesis H6:

H6a: Perceived Risk is inversely correlated with derivative securities investment Intention

H6b: Attitude mediates the relationship between Perceived Risk and derivative securities investment Intention

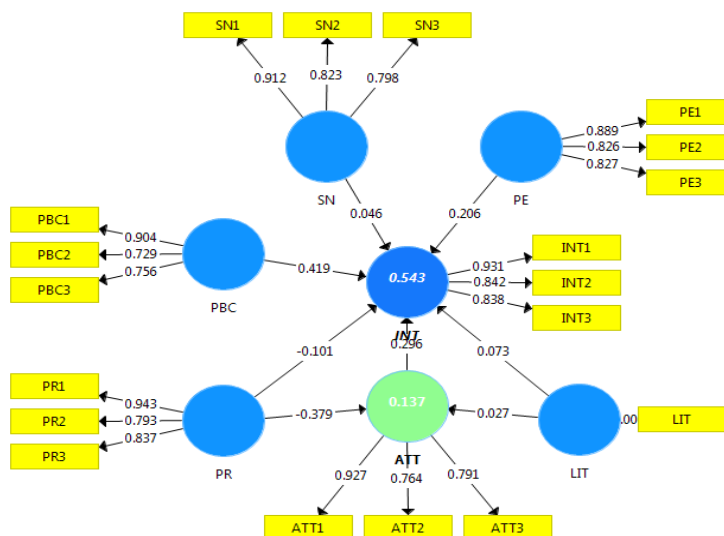
- Hypothesis H7: Different income leads to difference in factors affecting the Intention to invest in derivative securities

On the basis of the research hypotheses given, this article proposes the research model as shown in Figure 1:

4. PLS-SEM algorithm outcomes

4.1. PLS outcomes

From the proposed research model, the author conducted to test the PLS-

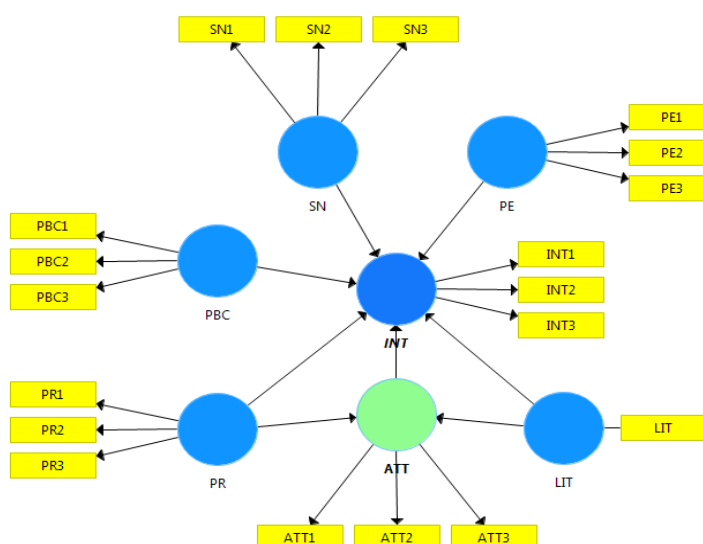


Source: Summarized by the author from SmartPLS 3.2.9

Figure 2: PLS algorithm outcomes

SEM model. Figure 2 depicts the extraction results from PLS algorithm, using Smart PLS 3.2.9 software:

After conducting a preliminary test of the proposed model by PLS algorithm, the results showed



Source: Summarized by the author from SmartPLS 3.2.9

Figure 1: Proposed Research Framework

that the factor loading of all indicators are greater than 0.706, which means that it is eligible to accept all factors, includes the indicators and latent variables of the model according to (Hair et al., 2019). With this result, the model is eligible to further analyze and test the validity criteria.

4.2. Statistical Tests Results

- Reliability and Validity Tests

To ensure the reliability and validity of groups of variables, the Composite Reliability value (CR) must be greater than 0.7 and the Average Variance Extracted coefficient (AVE) must be greater than 0.5 to ensure convergent validity. If the convergence validity is not satisfied, because the observed variable is not correlated with other variables in the same factor, it means that the latent variable is not well explained by its observed variables.

Table 3 provides more evidence of the model composite reliability, with the CR aggregate confidence values both greater than 0.7, as (Hair et al., 2019) pointed out. The LIT variable has only 1 indicator, so the reliability values are equal to 1. The convergence value of the model is also satisfactory, meaning that all indicators converge, have correlation high to explain latent variables. AVE are all higher than 0.5, as suggested by (Hair et al., 2019).

Table 3: Reliability and Validity Tests

Latent Variable	Cronbach's Alpha	rho_A	CR	AVE
ATT	0.773	0.836	0.869	0.689
INT	0.840	0.852	0.904	0.759
LIT	1.000	1.000	1.000	1.000
PBC	0.718	0.780	0.841	0.640
PE	0.805	0.820	0.885	0.719
PR	0.823	0.883	0.894	0.739
SN	0.802	0.836	0.882	0.715

Source: Summarized by the author from SmartPLS 3.2.9

- Discriminant Validity Tests

The next evaluation criterion for the validity of the model is to test the data discrimination. Discrimination value is the degree to which the factors are distinct and not correlated. Discrimination values can be verified using a variety of methods such as the cross-load factor, or the Fornell-Larcker coefficient. In this study, the author used the Heterotrait-Monotrait (HTMT) coefficient of (Henseler et al., 2015). The HTMT value is too high leading to the problem that the latent variable is better explained by the component indicators of the other latent variable rather

Table 4: HTMT test for Discriminant Validity

Latent Variable	ATT	INT	LIT	PBC	PE	PR
ATT						
INT	0.586					
LIT	0.109	0.076				
PBC	0.362	0.765	0.040			
PE	0.178	0.537	0.093	0.448		
PR	0.435	0.445	0.364	0.396	0.307	
SN	0.184	0.283	0.035	0.163	0.458	0.120

Source: Summarized by the author from SmartPLS 3.2.9

than its own. In other words, if the HTMT is too high, the indicator of one latent variable explains another latent variable. To ensure discriminatory value, HTMT needs to be less than 0.85. All HTMT values in Table 4 have achieved results below 0.85, meeting the maximum threshold of this criterion.

- Structural Model Multicollinearity Tests

Multicollinearity is a phenomenon that occurs when latent variables are closely correlated. This makes the coefficient R² and the regression coefficients encountering deviations in their estimates. To test for multi-collinearity, VIF variance inflation factor was used. If VIF is > 2, there is a sign of multicollinearity, if VIF is > 10, there will be multicollinearity and if

Table 5: Variance Inflation Factor

Latent Variable	ATT	INT
ATT		1.218
INT		
LIT	1.129	1.160
PBC		1.273
PE		1.355
PR	1.129	1.440
SN		1.183

Source: Summarized by the author from SmartPLS 3.2.9
 VIF is <2, the model is not multicollinear, according (Hair Jr et al. , 2016).

The results from Table 5 show that the model does not have multi-collinearity phenomenon because the variance inflation factor of all potential variables are less than 2, the maximum is 1.44

- Bootstrap Algorithm for Statistical Significance

In implementing PLS-SEM algorithm, Bootstrap algorithm is used to determine the level of statistical significance in the relationship

between latent variables. Accordingly, if the t-value coefficient of the Bootstrap algorithm is greater than 1.96, it will correspond to the value $\alpha = 0.05$, and the relationship between the two latent variables is considered statistically significant at 5%. Table 6 below shows the results of Bootstrap algorithm

The Bootstrap method shows that all t-values are higher than 1.96, except for LIT → ATT (t-values have a value of 0.578) and SN → INT (t-values have a value of 1.4), asserting that almost all variables in the model are statistically significant. This test shows that among the hypotheses given, hypothesis H3 and H5b are not accepted.

- PLS-MGA Algorithm

To test hypothesis H7, the article implements PLS-MGA algorithm (Hair Jr et al., 2016), to test

Table 6: Bootstrap Algorithm Outcomes

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P-Values
ATT -> INT	0.296	0.295	0.033	9.035	0
LIT -> ATT	0.027	0.028	0.047	0.578	0.563
LIT -> INT	0.073	0.071	0.032	2.322	0.021
PBC -> INT	0.419	0.421	0.034	12.176	0
PE -> INT	0.206	0.205	0.037	5.511	0
PR -> ATT	-0.379	-0.379	0.038	10.019	0
PR -> INT	-0.101	-0.101	0.038	2.621	0.009
SN -> INT	0.046	0.047	0.033	1.4	0.162

Source: Summarized by the author from SmartPLS 3.2.9

Table 7: PLS-MGA outcomes

	Path Coefficients-diff (high - low)	p-Value original 1-tailed (high vs low)	p-Value new (high vs low)
ATT -> INT	-0.02	0.618	0.765
LIT -> ATT	0.513		
LIT -> INT	0.255	0	0.001
PBC -> INT	-0.212	0.998	0.003
PE -> INT	-0.013	0.568	0.864
PR -> ATT	0.146	0.051	0.103
PR -> INT	-0.218	0.996	0.009
SN -> INT	-0.014	0.578	0.844

Source: Summarized by the author from SmartPLS 3.2.9

the statistically significant difference between two groups of subjects with different demographic characteristics. In particular, low-income earners with incomes below 20 million and high-income earners earning over 20 million or more. The results of the PLS-MGA algorithm shown in Table 7 show that there is a statistically significant difference between the two high income groups and the income group in the relationship $LIT \rightarrow INT$, $PBC \rightarrow INT$ and $PR-INT$. This shows that the income demographics actually have an impact on the relationship explaining the intention to invest in derivative securities.

5. Research Outcomes Discussions

Using the TPB expanded model, with the integration of specific factors, this study has provided evidence for the appropriateness of the proposed hypotheses. All latent variables in the model, except for the Social Norms, have direct and statistically significant impacts on the intention to invest in derivative securities in Vietnam with the ability to explain the model of 54.3%. Among the factors that affect the intention to invest in derivative securities, the variable PBC has the most direct impact on the dependent variable Intention with a path coefficient of 0.419, confirming the hypothesis H2, this result reflects the fact that the potential investor is strongly influenced by the perception of his or her ability to control investment results. This result partly shows the overconfidence of investors in Vietnam, consistent with the research results of (Dzung Tran Trung et al., 2020), (My et al., 2016).

The Attitude factor has a direct and positive impact on derivative securities investment intentions, with the value of the path coefficient (impact factor) of 0.296, supporting hypothesis H3. Not only plays the role of direct explanation, the attitude factor also acts as a mediator between risk perception and investment intention, confirming the hypothesis H6b. Hypothesis H5b: An attitude acting as an intermediary between Financial Literacy and Investment Intention, however, is not supported. The important role of the Attitude factor in explaining the Intention

to invest in derivative securities in Vietnam both directly and indirectly contributes to Perceived Risk shows the importance of investor attitudes towards with derivatives.

Besides, Past Experience has an impact on Intention, with path coefficient value of 0.2, supporting hypothesis H4. Past experience explored in this study includes both derivative exposure and other financial products, it shows that people who have had experience in banking and finance would have clearer investment intention in derivative securities.

Latent variable Financial Literacy has a low impact on investment intentions at 0.073, but this effect is statistically significant, supporting hypothesis H5a. Financial Literacy variable in this study includes only objective financial literacy and is measured with only one indicator, so this result is acceptable. This result brings the implications of research on the need to improve the level of financial literacy to increase the intention to invest in derivative securities among potential individual investors. One noteworthy point is that Perceived Risk, one of the new factors included in the model, has a negative impact on investment intentions with an impact factor of -0.101, but by indirectly affecting the factor investors' Attitude, the total impact is -0.112. This result shows that hypothesis H6a and H6b are confirmed. In fact, when investing in a high-risk product such as a derivative, the investor's perception of risk has a negative impact on their investment intentions. This result also implies that the unified policy is that investors need to be trained to have a more correct perception of risks when investing in derivative securities, so that they can make the right choice for them.

Finally, the PLS-MGA method shows the impact of demographic factors on the research results, in particular, Income factor. High-income earners have a stronger impact from Financial literacy $\rightarrow$ Investment Intent, but a weaker impact from Perceived behavioral control $\rightarrow$ Intention. This result shows that the high-income people have a

clear differentiation in the impact of financial literacy, while those in the lower income group (mainly students) do not have a clear differentiation in the Financial literacy, leading to a low path coefficient Financial literacy → Investment intention in this demographic group. In addition, the PBC factor of the low-income group more strongly influences the Intention, showing an indication that the level of overconfidence of this group is stronger than the high-income people, is people who have actually managed their finances and are more experienced, so they have better emotional restraint of intention to invest.

6. Conclusions

In general, the research results show that investment intentions in derivative securities are affected by most factors in the adjusted expanded TPB model, including factors: ATT, PBC, PE, PR, LIT. In which, the three factors that have the strongest impact are PBC, ATT and PE. Besides playing the role of direct explanation, ATT also plays an intermediary role for the relationship between PR and INT. In addition, the study also found evidence of differences in demographic factors to the relationships in the model.

The study has confirmed the possibility of applying the TPB framework to explain investment intentions in derivatives in Vietnam, and at the same time introduced some new potential variables, helping to suggest to continue to expand this research direction in the future, e.g. measuring LIT by both methods, or extending the scope of MGA and post-MGA tests. ♦

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Summary

Trong nghiên cứu này, phương pháp nghiên cứu PLS-SEM được sử dụng để đánh giá mối quan hệ

giữa các biến ban đầu của Lý thuyết hành vi có kế hoạch (TPB) là Thái độ, Chuẩn xã hội, Nhận thức kiểm soát hành vi, cùng với các biến được mở rộng là Kinh nghiệm quá khứ, Nhận thức rủi ro và Thông hiểu tài chính để giải thích ý định hành vi đầu tư chứng khoán phái sinh tại Việt Nam. Bài viết cũng sử dụng phương pháp PLS-MGA để đánh giá tác động của yếu tố nhân khẩu học Thu nhập tới sự khác biệt trong mối quan hệ giữa các biến tiềm ẩn. Kết quả nghiên cứu cho thấy hầu hết các biến trừ Chuẩn xã hội đều có tác động có ý nghĩa thống kê tới ý định hành vi và phân tích MGA cho thấy có sự khác biệt có ý nghĩa thống kê trong tác động của thông hiểu tài chính giữa nhóm thu nhập cao và thu nhập thấp.

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