湖南大学学报（自然科学版）
Journal of Hunan University (Natural Sciences)

第 50 卷 第 7 期
2023 年 7 月

Available online at http://jonuns.com/index.php/journal/index

Vol. 50 No. 7
July 2023

Open Access Article

https://doi.org/10.55463/issn.1674-2974.50.7.12

Predicting the Saving Intention of Individual Investors in the Context of the Pandemic

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Received: April 7, 2023 / Revised: May 2, 2023 / Accepted: June 8, 2023 / Published: July 31, 2023

Abstract: Using the theory of planned behavior (TPB) and systemic factors, this article aims to predict factors that affect saving intention for the individual in the context of the pandemic. This study examines the role of perceived behavioral control of saving as a mediator in the relationship between perceived government policy and saving intention. The relationships of the proposed research model were evaluated using quantitative research methodologies, with data collected from 200 individual investors in Vietnam through convenient sampling. To analyze the research hypotheses, SEM was employed. According to the research findings, there was a positive correlation between the perceived behavioral control of saving, self-efficacy, social norms, and the pandemic. These findings have important ramifications for practitioners and academics interested in enhancing the money management skills necessary for long-term financial independence. This study emphasizes the significance of saving intentions for unforeseen events, with a particular focus on the role of perceived saving behavior. Additionally, it suggests that governments and educational institutions should prioritize financial management education programs to effectively educate citizens.

Keywords: saving intention, perceived behavioral control of saving, risk-taking, confidence level, social norms.

疫情背景下个人投资者储蓄意愿预测

摘要：本文旨在利用计划行为理论（TPB）和系统性因素来预测大流行背景下影响个人储蓄意愿的因素。本研究探讨了感知的储蓄行为控制作为感知政府政策和储蓄意愿之间关系的中介者的作用。使用定量研究方法，通过方便抽样从越南200名个人投资者收集数据，评估了所提出的研究模型的关系。为了分析研究假设，采用了扫描电镜。研究结果显示，感知的储蓄行为控制、自我效能、社会规范和流行病之间存在正相关关系。这些发现对于有兴趣提高长期财务独立所需的资金管理技能的从业者和学者具有重要影响。本研究强调了储蓄意图对不可预见事件的重要性，特别关注感知储蓄行为的作用。此外，它建议政府和教育机构

应优先考虑财务管理教育项目，以有效地教育公民。

关键词：储蓄意愿、感知的储蓄行为控制、风险承担、信心水平、社会规范。

1. Introduction

Personal financial planning is crucial because it directly impacts an individual's financial achievements. It encourages individuals to be more cautious with their spending habits, considering that people tend to prioritize spending over saving. Consequently, understanding their saving behavior becomes imperative. However, despite the significance of saving behavior in personal financial planning, there is a lack of comprehensive research on the factors influencing it. As emphasized in [1], the importance of personal savings is not only in contributing to national savings but also in facilitating economic development. By accumulating savings, individuals can acquire a substantial capital base for investment and economic growth, as well as prepare for unforeseen circumstances such as illnesses, natural disasters, job loss, or insufficient funds for business and production [2].

Additionally, for the last 2 years 2021 and 2022, it is evident that the COVID-19 pandemic, which caused the greatest global economic crisis, will have had a tremendous impact. The crisis precipitated a dramatic increase in inequality within developed and emerging nations. Emerging economies and poor groups will require substantially more time to recover from pandemic-induced income and livelihood losses, as indicated by preliminary evidence. In recent years, the financial sector has undergone significant transformations.

In the wake of the global pandemic, there is a notable void in our comprehension of individual investors' saving intentions, a phenomenon that has taken on new dimensions and complexities in this context. Specifically, resulting from the COVID-19 pandemic, governments have considered several actions to reduce and stop the pandemic spread to stabilize the economy and citizens' normal life. To cope with this issue, this study aims to demonstrate the role of perceived government quality in boosting the saving intention of individuals in emerging markets, referring to the case of the Vietnam setting.

This study aims to measure the determinants of the deposit saving intention for emerging markets. The remaining work is organized as follows. The second section examines the literature review, and the third section discusses the methodology. In section 4, the empirical findings are presented. In section 5, a few observations and limitations will be presented to complete the conclusion.

2. Literature Review

2.1. Theory of Planned Behavior

The theory of planned behavior was formulated in [3] based on the Theory of Reasoned Action [4]. It is one of the most popular models for describing the effect of knowledge and incentive on human behavior [3]. The theory explains behavior in terms of intention-capturing motivators, such as attitude, subjective standards and perceived behavioral control.

Several attempts have been made to link the theoretical framework of the theory of planned behavior to the intention to save deposits. According to [5], saving intent mediates the relationship between retirement attitudes and planning behavior. TPB was used in [6] to analyze the factors that influence the intention to save at Indonesian Islamic institutions. The role of TPB was examined in [7] while explaining the energy-saving behaviors of high school students. TPB is identified in [8] as a theory frequently used to explain the intentions of individuals.

2.2. Perceived Behavioral Control

The literature highlights the importance of perceived behavioral control of saving (PBCS) in influencing the saving intentions and behaviors of individuals. The relationship between PBCS and retirement savings in Islamic institutions has been the subject of several studies. These studies have consistently found positive associations between PBCS and saving intentions, indicating that individuals with a stronger sense of PBCS are more motivated and inclined to engage in saving behaviors [9]. In addition, PBCS has been identified as an important mediator between attitudes, subjective norms, and actual saving behavior [10]. Using theoretical frameworks such as the theory of planned behavior (TPB) has helped validate the impact of PBCS on saving intentions and subsequent behavior [7]. Understanding the function of PBCS is crucial for the development of effective interventions and strategies to promote saving behavior in various contexts.

H1: Perceived behavioral control has a positive effect on the saving intention.

2.3. Perceived Risk-Taking

Perceived risk-taking refers to the current assessment of risk. Traditional economic theories assume that investors are rational and make intelligent

decisions. However, behavioral finance literature demonstrates that investors' risk propensity is not always consistent with their behavior [11]. Due to their desire to maximize investment returns, many investors are inclined to take risks. Cognitive biases do not directly affect the investment performance of investors because their behavior ultimately determines their risk-taking propensity.

As a result of their actions, investors confront risks [12]. Therefore, risk propensity must be considered a mediating variable. Individual investors can have a substantial effect on the success of their investments [13]. However, conventional finance measure investment success primarily on the basis of risk and return, ignoring investor contentment with their investment decisions.

H2: Perceived risk-taking has a positive effect on the saving intention.

2.4. Self-Efficacy

Self-efficacy refers to a person s confidence in their ability to perform a specific task successfully, and it is closely related to self-confidence, motivation, optimism, and the belief that one can surmount obstacles in life [14]-[15]. People with a high level of self-efficacy believe that they can complete a given undertaking. Even if a person has a generally high level of self-efficacy, it is essential to observe that self-efficacy can vary across different tasks [15]. For instance, a person may have high self-efficacy in their professional field but struggle to lose weight.

The self-efficacy theory proposed by Bandura [14]-[16] has implications for motivation. Self-efficacy is the belief in one's capacity to accomplish goals. Self-esteem indicates perceived self-efficacy. Individuals with a high sense of self-efficacy are confident in their ability to surmount obstacles and accomplish difficult tasks. Self-efficacy plays a role in establishing objectives, exerting effort, overcoming obstacles, and recovering from setbacks.

H3: Self-efficacy has a positive effect on the saving intention.

2.5. Social Norms

According to [17], social norms encompass the social influence exerted by individuals or groups to alter the behavior of others. The environment, including the family, educational institutions, and community, plays a significant role in shaping past behavior. The community environment includes student involvement in the local community, local media, social gatherings, and other aspects of neighborhood life.

Numerous studies have investigated the connection between social norms and saving intentions. The influence of the social milieu on saving behavior using a sample size of 82 persons was examined in [18]. The study confirmed that the social environment can influence individuals' propensity to save through bank deposits, suggesting that social norms may play a role in the behavior of individuals who make bank deposits for savings. In a similar vein, it was discovered that subjective norms, which refer to the perceived social pressure to engage in a particular behavior, have a substantial impact on saving attitudes and behavior [19].

H4: Social norms have a positive effect on the saving intention.

2.6. Pandemic

As demonstrated by [20]-[21], the COVID-19 pandemic has had a significant global impact on deposit-saving practices. According to these studies, the pandemic has disrupted the traditional operations of banks, resulting in an increase in the quantity of money that households deposit in banks. In addition, the pandemic has been associated with higher unemployment rates, depleted savings deposits, and a decline in a country's payment income [22]. The outbreak of the pandemic has had a significant impact on the economic activities of businesses and households as well as the operations of banks worldwide, especially in terms of capital accumulation from depositors with savings accounts in commercial banks [23]. In addition, the pandemic has shed light on the factors that influence consumer purchasing behavior, focusing on cost-cutting measures and safety concerns [22].

H5: The pandemic has a positive effect on the saving intention.

2.7. Easy to Use

Perceived ease of use is defined as an individual's perception of how straightforward it will be to follow a particular procedure [24]. The perceived ease of use is the perceived simplicity of comprehending, grasping, and using an innovation. It correlates with consumers' belief that a new product or service is preferable to its competitors. According to [25], perceived ease of use means the simplicity of an innovation comprehension and application. Perceived simplicity of use is the consumer's belief that using online banking will require minimal effort.

H6: Ease of use has a positive effect on the saving intention.

2.8. Perceived Government Policy

Individuals' intentions to save their deposits are significantly affected by government policies. In particular, macroeconomic factors, such as government policy, play a substantial role in shaping the economy. The implementation of fiscal policies, such as government expenditure, can have a significant impact on both private consumption and the national savings

rate [26]. Effective communication and transparent policy presentation are crucial for fostering confidence and understanding of these policies. Individuals can be motivated to support and engage in saving behaviors by ensuring that they comprehend and have faith in government actions. In addition, the government can encourage saving practices and financial sustainability through various interventions and regulations, including deposit insurance and budget stabilization funds [27]. In addition, the supervision and regulation of microfinance institutions by the government contribute to the security of deposits and the overall governance of the sector [28].

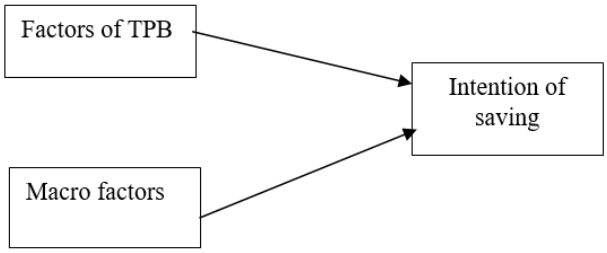
In conclusion, government policies and interventions play a crucial role in shaping the deposit-saving intentions of individuals and fostering their overall financial well-being.

H7: Macro factors have a positive effect on the saving intention.

H8: Perceived behavioral control of saving plays a mediator role in the nexus of macro factors with saving intention.

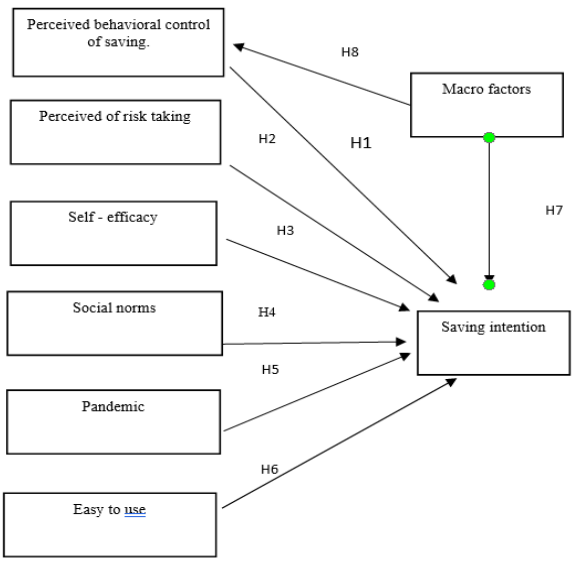
3. Research Method and Data

Figure 1 shows conceptual framework of this research.



Source: own elaboration

Fig. 1 Conceptual framework



Source: own elaboration

Fig. 2 Empirical model

A questionnaire-based study was conducted to better understand the variables influencing the saving intentions of Vietnamese investors. The questionnaire was managed using Google Forms, and its introduction section explained the research goal. Between April 2023 and August 2023, responses were collected. The questionnaire was translated into Vietnamese to ensure that respondents could fully comprehend its contents. The items used were operationalized using a five-point Likert scale ranging from "highly disagree" to "highly agree". The construction of the questionnaire is based on the Likert five-level scale, which allows for the measurement of concepts without imposing restrictions on survey respondents [29].

According to [30], the sample size for exploratory factor analysis (EFA) should be at least 50, and preferably 100, with an observation-to-measurement variable ratio of 5:1, i.e, when there is a measured variable, there should be at least 5 observations. Five times the number of observed variables is the optimal number of samples for multivariate regression analysis. The number of observations to be collected according to the 5:1 rule is 5 34 = 170 observations. To prevent invalid response sheets, 200 answer sheets were collected for this study. The results from 200 votes are legitimate. Table 1 demonstrates this in detail.

Table 1 Variable explanation (Own elaboration based on investment results)

Variable	The number of constructs	Adapted Sources
The saving intention (IS)	4	[31], [32]
Perceived behavioral control of saving (PBCS)	4	[33], [34]
Perceived risk-taking (RT)	4	[35]
Self-efficacy (CC)	4	[36], [37]
Easy to use (ETU)	6	[38], [39]
Perceived government policy	3	[40]
Social norms (SN)	5	[41]
Pandemic	4	[42], [43]

Before proceeding to the primary examination, validity and reliability assessments were conducted. Because the Cronbach's Alpha values are greater than 0.70 and the factor loading values are greater than 0.50, the SEM results indicate that the questionnaire items are valid and reliable [44]. Next, this attempt keeps checking the variance inflation factor (VIF) with a value below 10 to ensure that there is no multicollinearity [44].

Table 2 illustrates that 61% of the total 200 respondents received during the survey period were female, while 39% were male. Of the sample respondents, 74.5% had a bachelor's degree, 19% had a master's degree, and 6.5% had doctoral degrees. Most respondents were unmarried (69% per month, from 21 to 30 million VND per month) and were about 18 – 25 years old.

Table 2 Demographic profile (Own elaboration based on investment results)

Variable	Category	Frequency	%
Marital Status	Single	138	69%
	Married	62	31%
Education	Bachelor's degree	149	74.5%
	Master's degree	38	19%
	Doctoral degree	13	6.5%
Gender	Male	78	39%
	Female	122	61%
Income	From 10 to 20 million VND/month	42	42%
	From 21 to 30 million VND/month	91	91%
	From 31 to 40 million VND/month	13	13%
	Over 40 million VND/month	54	54%
Age	18–25 years old	110	55%
	26–35 years old	45	17.5%
	36–45 years old	35	22.5%
	46–55 years old	10	5%

4. Results and Discussion

Based on the Table 3 measurement model, it is easy to see that all constructs and the whole constructs have KMO (Kaiser-Meyer-Olkin) in the range $0.5 \leq KMO \leq 1$; therefore, it is appropriate to conduct the exploratory factor analysis. At the same time, according to [45]-[46], all variables have Cronbach's Alpha above 0.7; therefore, all determinants have pervasive statistics.

Table 3 Measurement model (Own elaboration based on investment results)

Construct	Items Description	The number of descriptions	Cronbach's α
Perceived behavioral control	PBCS	4	0.7132
Risk-taking propensity	RT	4	0.771
Self-efficacy	CC	4	0.7872
Subjective norm	SN	5	0.7885
Perceived government policy	PGP	3	0.8248
Easy to use	ETU	6	0.9001
Pandemic	P	4	0.7708
Saving intention	IS	4	0.8314

Bartlett's test of sphericity	Value
KMO	0.862
Chi-square	4794.078
P-value	0.000
Degrees of freedom	1081

Eigenvalues represent the total variance that a given principal component can explain. In theory, they can be positive or negative, but in practice, they only explain positive variance. Table 4 demonstrates that all factors are positive and higher than zero, which indicates a good sign. At the same time, Table 4 explores that factor 15 has an eigenvalue value above 1, with a cumulative of 68.1%, so that 15 factors will explain 68.1% variance of determinants. To assure the rationale of determinants, table factor loadings will be explored in detail (see appendix). At the same time, because the sample size of this study is about 200 respondents, factor loading should be above 0.5, in accordance with [44].

Table 4 Factor correlation analysis (Own elaboration based on investment results)

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor 1	16.81852	12.37239	0.267	0.267
Factor 2	4.44614	1.31523	0.0706	0.3375
Factor 3	3.13091	0.88502	0.0497	0.3872
Factor 4	2.24589	0.14669	0.0356	0.4229
Factor 5	2.0992	0.16236	0.0333	0.4562
Factor 6	1.93684	0.18232	0.0307	0.4869
Factor 7	1.75452	0.09393	0.0278	0.5148
Factor 8	1.66059	0.07131	0.0264	0.5412
Factor 9	1.58928	0.24136	0.0252	0.5664
Factor 10	1.34792	0.0518	0.0214	0.5878
Factor 11	1.29612	0.05988	0.0206	0.6083
Factor 12	1.23624	0.04244	0.0196	0.628
Factor 13	1.1938	0.1002	0.0189	0.6469
Factor 14	1.09361	0.04319	0.0174	0.6643
Factor 15	1.05042	0.06199	0.0167	0.681
Factor 16	0.98843	0.08897	0.0157	0.6966
Factor 17	0.89946	0.01368	0.0143	0.7109
Factor 18	0.88578	0.01842	0.0141	0.725
Factor 19	0.86736	0.04105	0.0138	0.7387
Factor 20	0.8263	0.02955	0.0131	0.7519
Factor 21	0.79675	0.01683	0.0126	0.7645
Factor 22	0.77992	0.04161	0.0124	0.7769
Factor 23	0.73831	0.0291	0.0117	0.7886
Factor 24	0.70921	0.04217	0.0113	0.7999
Factor 25	0.66704	0.01391	0.0106	0.8105
Factor 26	0.65313	0.03539	0.0104	0.8208
Factor 27	0.61775	0.01365	0.0098	0.8306

Continuation of Table 4				
Factor 28	0.6041	0.02714	0.0096	0.8402
Factor 29	0.57695	0.03556	0.0092	0.8494
Factor 30	0.5414	0.01524	0.0086	0.858
Factor 31	0.52616	0.00722	0.0084	0.8663
Factor 32	0.51894	0.02932	0.0082	0.8746
Factor 33	0.48962	0.04238	0.0078	0.8823
Factor 34	0.44724	0.00482	0.0071	0.8894
Factor 35	0.44242	0.01087	0.007	0.8964
Factor 36	0.43155	0.03261	0.0069	0.9033
Factor 37	0.39894	0.01872	0.0063	0.9096
Factor 38	0.38022	0.01645	0.006	0.9157
Factor 39	0.36377	0.018	0.0058	0.9214
Factor 40	0.34577	0.00631	0.0055	0.9269
Factor 41	0.33946	0.02486	0.0054	0.9323
Factor 42	0.3146	0.00858	0.005	0.9373
Factor 43	0.30602	0.01406	0.0049	0.9422
Factor 44	0.29196	0.01295	0.0046	0.9468
Factor 45	0.27901	0.0172	0.0044	0.9512
Factor 46	0.26181	0.00468	0.0042	0.9554
Factor 47	0.25714	0.00845	0.0041	0.9595
Factor 48	0.24869	0.00993	0.0039	0.9634
Factor 49	0.23875	0.00452	0.0038	0.9672
Factor 50	0.23424	0.01213	0.0037	0.9709
Factor 51	0.22211	0.02889	0.0035	0.9744
Factor 52	0.19322	0.01656	0.0031	0.9775
Factor 53	0.17665	0.00081	0.0028	0.9803
Factor 54	0.17585	0.01187	0.0028	0.9831
Factor 55	0.16397	0.01484	0.0026	0.9857
Factor 56	0.14913	0.00819	0.0024	0.9881
Factor 57	0.14094	0.01495	0.0022	0.9903
Factor 58	0.12599	0.01105	0.002	0.9923
Factor 59	0.11494	0.00716	0.0018	0.9941
Factor 60	0.10778	0.01418	0.0017	0.9959
Factor 61	0.0936	0.00471	0.0015	0.9973
Factor 62	0.0889	0.01018	0.0014	0.9988
Factor 63	0.07872	.	0.0012	1

Table 5 Rotated factor loadings (Own elaboration based on investment results)

Variable	**Factor 1**	**Factor 2**	**Factor 3**	**Factor 4**	**Factor 5**	**Factor 6**	**Factor 7**	**Factor 8**	**Uniqueness**
IS1			0.7049						0.3824
IS2			0.7298						0.3778
IS3			0.8593						0.189
IS4			0.8448						0.2243
PBCS1							0.6971		0.4291
PBCS2							0.7505		0.3287
PBCS3							0.725		0.357
PBCS4									0.4246
RT1		0.7494							0.3792
RT2		0.58							0.5104
RT3		0.7677							0.3163
RT4		0.7417							0.3394
CC1						0.6218			0.3857
CC2						0.7396			0.3418
CC3						0.7184			0.3967
CC4						0.6751			0.3415
SN1					0.5685				0.3853
SN2					0.6264				0.3926
SN3					0.7652				0.2568
SN4					0.7549				0.2511
SN5					0.7434				
P2								0.5136	0.3784
P3								0.5971	0.3434
P4								0.7068	0.3151
ETU1	0.7309								0.2967
ETU2	0.8058								0.2233
ETU3	0.6942								0.3821
ETU4	0.824								0.2061
ETU5	0.8245								0.2101
ETU6	0.7891								0.2927

Continuation of Table 5		
PGP1	0.7178	0.3731
PGP2	0.7714	0.255
PGP3	0.714	0.3244
PGP4	0.6899	0.357

Table 5 demonstrates the discrimination of EFA. First, all variables have factor loadings above 0.5 in accordance with [44], which indicates that constructs are rational. Second, regarding Table 4, all constructs assure the discriminant of EFA so that our attempt continuously conducts structural equation modeling for testing.

Table 6 CFA results (Own elaboration based on investment results)

RAMSEA	0.054
CFI	0.902
TLI	0.891
BIC	21438.092
AIC	21847.083

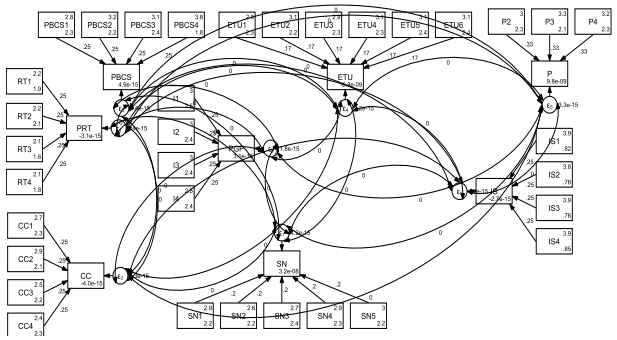


Fig. 3 CFA results (Own elaboration based on investment results)

Before analyzing the SEM linear structural model, this study performs the VIF test, the residuals test to determine whether they are normally distributed, and the linear trend test of the independent variables was established to validate the data suitability for SEM linear structural model analysis. The outcomes of these examinations are listed below.

This study assessed multicollinearity for each explanatory variable using the variance inflation factor (VIF). To prevent multicollinearity, the VIF test was used in this study. Table 7 reveals that there are no values greater than or equal to 10, confirming that the model lacks multicollinearity. In this instance, the VIF equals 1/(1-0.952) = 10.256. Multicollinearity is generally high if the VIF is greater than 10 [44].

Table 7 VIF test (Own elaboration based on investment results)

Variable	**VIF**	**1/VIF**
ETU	1.61	0.620
PGP	1.54	0.649
SN	1.51	0.661
CC	1.48	0.675
RT	1.39	0.720
PBCS	1.19	0.839
Mean VIF	1.45	

The correlation matrix illustrates the relationship between dependent and independent variables (Table 8). Each variable has a correlation of one with its own self. A greater value indicates a stronger correlation. A lower value, in contrast, signifies a weaker relationship. Table 8 indicates that all variables have a significant positive relationship with saving intention for individual investors in Vietnam.

Table 8 Correlation matrix (Own elaboration based on investment results)

IS	**SN**	**PBCS**	**RT**	**CC**	**ETU**	**PGP**
IS	1.000					
SN	0.2072 (0.0032)***	1.000				
PBCS	0.3137 (0.000)***	0.3206 (0.000)***	1.000			
RT	0.0159 0.8235	0.4456 (0.000)***	0.2153 (0.0022)***	1.000		
CC	0.1645 (0.0199)***	0.4504 (0.000)***	0.2917 (0.000)***	0.4246 (0.000)***	1.000	
ETU	0.1501 (0.0339)***	0.3952 (0.000)***	0.3136 (0.000)***	0.3247 (0.000)***	0.4087 (0.000)***	1.000
PGP	0.0486 0.4942	0.3672 (0.000)***	0.2691 (0.0001)***	0.3371 (0.000)***	0.3726 (0.000)***	0.5481 (0.000)***

Figure 4 explores the structural equation model. Accordingly, saving intention (IS) is a dependent variable. Perceived behavioral saving is mediated by a macro factor (PGP) and saving intention (IS). Meanwhile, SN (social norms), RT (risk taking), CC (confident level) and ETU (easy to use), and pandemic (P) are independent variables.

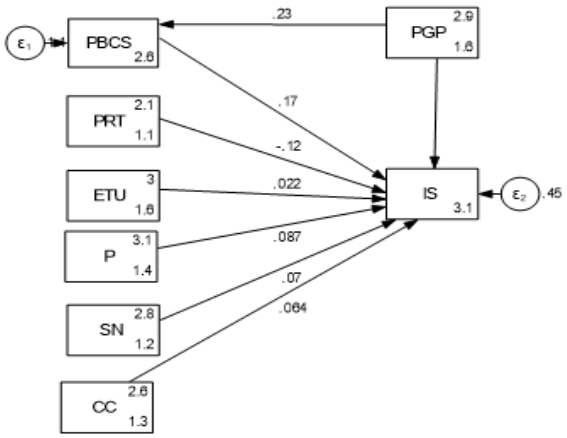


Fig. 4 Structural equation model (Own elaboration based on investment results)

Table 9 SEM regression (Own elaboration based on investment results)

OIM		
	Coef.	**z**
	Std. Err.	**P > z**
Structural		
PBCS		
PGP	0.232	3.95
	0.059	(0.000)***
_cons	2.551	13.79
	0.185	(0.000)***
IS		
PBCS	0.173	3.59
	0.048	(0.000)***
ETU	0.022	0.45
	0.049	0.654
RT	-0.123	-2.2
	0.056	(0.028)**
CC	0.060	1.19
	0.050	(0.023)**
SN	0.078	1.54
	0.051	(0.012)*
P	0.086	1.66
	0.052	(0.098)*
PGP	-0.071	-1.5
	0.047	0.133
_cons	3.063	16.7
	0.183	(0.000)***
var(e. PBCS)	1.092	
	0.109	
var(e. IS)	0.451	
	0.045	

Notes: Prob. > chi 2 0.0002; *** p < 0.01; ** p < 0.05; * < 0.1

According to Table 9, all variables have a statistically positive relationship with saving intention, including perceived behavior of saving (PBCS), social norms (SN), risk-taking (RT), pandemic (P), and self-efficacy (CC), except for risk-taking (RT) that consists of a negative relationship with saving intention. Regarding self-efficacy (CC), the higher an individual's perceived confidence level, the greater their intention to save money. Those who believe they have control over their financial situation are likely to have strong saving intentions, whereas those who believe they have no control over their finances have a proportionally reduced intention to save money [47]-[48].

With respect to social norms, this attempt was also found to have a positive and significant influence on saving intentions. This means that if an individual makes significant savings, he is more likely to develop a favorable attitude toward saving and act on his intention. These findings are consistent with those of [32], [49]-[50]. The perception of behavioral control is determined by beliefs about the ease or the difficulty of saving. It can be based on one's own experience and the experiences of one's acquaintances and family members. The results for PBCS demonstrated a positive statistical effect for IS, indicating that self–control influences explaining behavior. This finding is consistent with previous research [49], [51]-[52] in that it explains how persons control their' desire for unnecessary spending so that they can save for their future requirements. The pandemic showed a positive relationship with the saving intention. This result agreed with previous attempts [20]-[21]. Accordingly, the pandemic has impacted the traditional activities of banks, resulting in an increase in the number of bank deposits that households invest in.

This research identified the mediator effect of PBCS on the relationship between PGP and IS. This can be explained by the fact that macro factors such as government regulations can affect the attitudes and beliefs of individuals regarding their saving behavior. These factors shape societal norms and values, which in turn affect individuals' perceptions of their behavioral control over saving. Additionally, PGP can indirectly influence PBCS by shaping individuals' awareness of the importance and benefits of saving. This suggests that PGP can influence the attitudes and beliefs of individuals regarding their effectiveness and control over their saving practices.

To determine the role of the mediator effect of PBCS on the link between PGP and IS, this study continuously conducts the test below.

Table 10 Mediating testing (Own elaboration based on investment results)

Estimates	**Delta**	**Sobel**	**Monte Carlo**
Indirect effect	0.071	0.071	0.070
Std. Err.	0.026	0.026	0.026
z- value	2.709	2.752	2.683
Conf. Interval	0.020, 0.122	0.020, 0.121	0.026, 0.128

Baron and Kenny' approach to testing mediation	
Step 1 – PBCS: PGP	(X -> M) with B = 0.269 and p = 0.000
Step 2- IS: PBCS	(M -> Y) with B = 0.263 and p = 0.000
Step 3- IS: PGP	(X-> Y) with B = -0.125 and p = 0.132

Zhao, Lynch, and Chen's approach to testing mediation	
Step 1- IS: PGP	(X-< Y) with B = 0.042 and p = 0.666

As Step 1, Step 2, and Sobel's test above is significant and Step 3 is not significant, the mediation is complete.

As the Monte Carlo test above is significant and Step 1 is not significant, you have indirect–only

mediation (full mediation)

RIT = (Indirect effect/Total effect)

(0.081/ 0.124) = 0.658

This means that about 66% of the effect of PGP on IS is mediated by PBCS.

RID = (Indirect effect/Direct effect)

(0.081/ 0.042) = 1.920

That is, the mediated effect is approximately 1.9 times as large as the direct effect of PGP on IS.

The mediating testing indicated that the mediated effect is approximately 1.9 times as large as the direct effect of PGP on IS. According to Baron and Kenny's approach to testing mediation, step 1 (PBCS -> PGP) has a p-value of 0.000, step 2 (IS -> PBCS) has a p-value of 0.0000, and step 3 (IS -> PGP) has a p-value of 0.132 so that there was not significant the mediation is complete. Zhao, Lynch, and Chen's approach showed that it consisted indirectly – only mediation (full mediation) between PGP and IS.

These outcomes of testing the hypotheses led to the following conclusions (Table 11).

Table 11 The summary of the hypotheses (Own elaboration)

Hypothesis	Description	Decision
H1	Perceived behavioral control has a positive effect on the saving intention.	Supported
H2	Perceived risk-taking has a positive effect on the saving intention.	Not Supported
H3	Self-efficacy has a positive effect on the saving intention.	Supported
H4	Social norms have a positive effect on the saving intention.	Supported
H5	A pandemic has a positive effect on the saving intention.	Supported
H6	Easy to use has a positive effect on the saving intention.	Not supported
H7	Macro factors have a positive effect on the saving intention.	Supported
H8	The perceived behavioral control of saving plays a mediator role in the nexus of macro factors with saving intention.	Supported

5. Conclusion

This study introduces a novel exploration of saving intention determinants among Vietnamese investors during the pandemic. Previous studies mostly measure the investing intention of individual investors. By analyzing seven key factors—PBCS, RT, CC, SN, P, ETU, and PGP—utilizing a structural equation model, this research yields significant insights. This study underscores the relevance of the Planned Behavior and Technological Acceptance Model in financial management, demonstrating the pivotal role of macro factors. Moreover, it unveils the mediating effect of perceived behavioral control on the interplay between macro factors and saving intention. Remarkably, the study reveals the pandemic influence on saving behavior, which is consistent with previous research. It also underscores the positive correlation between self-efficacy and saving intention and highlights the substantial impact of social norms. However, the lack of evidence linking ease of use with saving intention is attributed to the pandemic transformative effects on saving practices. In conclusion, this study advocates for enhanced financial management skills to mitigate unforeseen circumstances, emphasizing the importance of financial education programs targeting diverse age groups and urging policymakers to address these needs. However, this investigation has limitations. Utilization of self-reported data through questionnaires hinders a comprehensive understanding of respondents' saving intentions. In addition, the study incorporates just one moderating variable, perceived behavioral control, concerning the nexus between macro factors, and saving intentions. In forthcoming research endeavors, the incorporation of psychological factors is anticipated to enrich the understanding of individual behavioral intentions, thereby enhancing the depth and scope of the analysis.

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Appendix 1. Factor loading (Own elaboration based on investment results)

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Uniqueness
IS1	0.2872	0.5895	0.2147	0.2192	-0.2918	0.007	-0.0575	-0.0661	0.0005	0.383
IS2	0.2094	0.4006	0.2472	0.5017	-0.2962	0.0741	0.0541	0.046	-0.0097	0.3845
IS3	0.3173	0.6718	0.067	0.3963	-0.1591	0.2273	-0.1184	-0.0493	0.0587	0.1896
IS4	0.2361	0.6661	0.0703	0.389	-0.1295	0.2456	-0.2061	0.0231	0.0712	0.2192
PBCS1	0.3634	0.2144	0.1975	-0.0183	0.2242	-0.2677	0.3161	-0.3691	0.0234	0.424
PBCS2	0.4482	0.3662	0.091	-0.1112	0.2143	-0.0068	0.3503	-0.3129	0.2322	0.324
PBCS3	0.493	0.1889	0.2046	-0.1446	0.153	-0.1435	0.313	-0.3924	0.0605	0.3588
PBCS4	0.3383	0.4933	-0.1474	-0.1369	0.2191	0.135	0.2454	-0.0507	0.1536	0.4492
PB1	0.4069	0.3526	-0.0149	-0.3783	0.0335	-0.0184	-0.0142	0.2438	0.3762	0.3641
PB2	0.5078	0.4411	-0.021	-0.3869	0.2217	-0.1105	-0.1298	0.1777	0.0977	0.2782
PB3	0.4956	0.5101	-0.121	-0.2998	0.1118	0.0462	0.0807	0.3063	-0.3534	0.1498
PB4	0.4024	0.4895	-0.0942	-0.3628	0.106	0.0471	0.0353	0.275	-0.4145	0.1957
RT1	0.4717	-0.2474	0.3502	-0.0429	-0.1646	0.1511	0.1743	0.2398	0.1848	0.4199
RT2	0.4651	-0.3231	0.3144	-0.1537	-0.0453	0.1371	0.0156	0.1877	0.0844	0.4933
RT3	0.4687	-0.2788	0.3861	-0.101	-0.035	0.1843	0.3008	0.3472	0.0922	0.2886

Continuation of Appendix 1

RT4	0.5064	-0.3145	0.3277	-0.1244	-0.1753	0.2304	0.2348	0.1379	-0.0115	0.3638
CC1	0.4718	-0.1305	0.1835	0.4808	0.2592	-0.0246	0.1861	0.0739	0.0669	0.3832
CC2	0.4682	-0.0341	0.1589	0.4092	0.3603	0.0325	-0.0522	0.1252	-0.1878	0.4024
CC3	0.4537	-0.1275	0.1951	0.2812	0.3826	0.0297	0.1615	0.0205	-0.3004	0.3968
CC4	0.4846	-0.3829	0.1235	0.3514	0.3464	0.0338	0.0272	0.0307	-0.0743	0.3515
SN1	0.5283	-0.0916	0.1445	-0.1421	-0.0008	-0.1204	-0.2279	-0.0256	-0.0257	0.6037
SN2	0.5413	-0.0655	0.1867	0.0493	-0.0075	-0.0165	-0.3262	0.1221	0.2755	0.4679
SN3	0.549	-0.2064	0.2582	0.0545	0.039	-0.0964	-0.3562	-0.0651	0.1746	0.4139
SN4	0.4937	0.0245	0.4009	-0.1186	0.1271	-0.368	-0.3585	-0.0345	-0.0578	0.2962
SN5	0.5856	0.0822	0.2622	-0.0248	0.1537	-0.3789	-0.3702	0.0088	-0.0611	0.2729
P1	0.5004	-0.1583	0.2647	-0.2319	-0.3166	0.0753	0.0213	-0.1904	-0.0622	0.4542
P2	0.5605	-0.1024	0.1912	-0.2369	-0.4009	-0.0526	-0.0199	-0.2668	-0.024	0.3471
P3	0.5919	-0.017	0.1393	-0.0194	-0.3219	0.1686	0.0928	-0.0971	-0.2707	0.4063
P4	0.5735	-0.1471	0.1005	-0.0855	-0.2815	-0.0553	-0.0258	-0.1812	-0.3515	0.3928
ETU1	0.6856	-0.0314	-0.3344	0.1395	-0.11	-0.0695	0.1313	0.1281	0.1572	0.3224
ETU2	0.7147	-0.0474	-0.3971	0.0989	-0.1699	-0.1379	0.1245	0.0856	0.119	0.2346
ETU3	0.6502	-0.1054	-0.2918	0.0656	-0.0226	-0.2178	0.0943	0.1135	0.0633	0.4029
ETU4	0.6578	-0.0997	-0.4681	0.1542	-0.1617	-0.2635	0.0524	0.0021	-0.0261	0.2155
ETU5	0.6474	-0.1164	-0.4879	0.1298	-0.2072	-0.2148	0.0824	-0.0289	-0.0752	0.2102
ETU6	0.6119	-0.1755	-0.4453	0.1591	-0.0985	-0.2293	0.0362	0.1312	0.0289	0.2896
I1	0.5281	-0.2136	-0.1976	-0.0791	0.1729	0.4276	-0.0987	-0.2061	0.0001	0.3652
I2	0.5859	-0.0832	-0.3515	-0.1107	0.128	0.412	-0.2071	-0.1352	-0.0395	0.2652
I3	0.5839	0.0124	-0.2952	-0.0543	0.0903	0.3348	-0.2634	-0.1656	0.0166	0.3515
I4	0.5386	-0.3169	-0.2536	-0.0618	0.1961	0.2942	-0.1409	-0.1815	0.08	0.3572