

The Mediating Role of Perceived Behavioral Control on the Relationship Between Financial Knowledge and Saving Intention: A Study of Vietnamese University Students

Hoai Linh Do, Thi Mai Phuong Vu, Van Giang Nguyen, Ngoc Minh Vu, Duc Trung Nguyen,
Thanh Vinh Tran, National Economics University, Vietnam

Date Received: 30 November 2023 Revised: 22 January 2024 Accepted: 4 February 2024

Abstract

Young people, particularly university students, are often believed to desire a lifestyle associated with complete enjoyment, leading to money saving issues. The purpose of this study was to examine the effect of financial knowledge on the saving intention of Generation Z university students majoring in business and economics in Vietnam, as well as the mediating role of perceived behavioral control in this relationship. Quantitative and qualitative methods were used. The primary data was collected from respondents ($N = 625$) majoring in business and economics and in Vietnam and analyzed. The results indicated that while financial knowledge did not exert a direct influence on saving intention, perceived behavioral control mediated the relationship between financial knowledge and saving intention. Additionally, there were differences in saving intention among demographic groups, namely, gender, income, financial support from family, and household living arrangement. The results have relevance for educational institutions, financial organizations, and individuals, especially students in the disciplines of business and economics.

Keywords: *Financial knowledge, perceived behavioral control, saving intention*

Introduction

Credit Karma's survey of the financial aspirations of Generation Z, specifically those born between 1997 and 2005, reached 1,006 adults in March and April 2023. The results showed that 36% of Generation Z expected to retire at the age of 50, and 66% expected to retire at 60. However, three quarters of Zoomers did not have any private pension fund, and half of them didn't have a savings account (Credit Karma, 2023).

The same situation is true for Vietnamese youth, especially Generation Z. About 67% of Vietnamese surveyed felt hesitant about financial management, and the percentage of people who admitted not knowing how to manage money was the highest among the 10 countries surveyed (Backbase, 2021). For many people, the biggest challenge in financial management was saving (67%), and other difficulties included debt, setting aside money for retirement, managing money, or managing portfolios (Backbase, 2021). Moreover, Generation Z has a lifestyle that prefers freedom and experiential pursuits. Some individuals who have a desire to control their spending do not have the right tools and methods to realize their goals (Tien & Quynh, 2022). Generation Z is confronted with the issue of saving both locally and abroad, particularly with regard to not having sufficient reserves to handle future financial setbacks.

University students are preparing to enter the labor market and earn an income, so understanding their saving intention will help to more accurately predict their financial behavior and their financial well-being in the future. Business and economics students are exposed to subjects related to economics and finance in the curriculum, so they have a certain amount of financial knowledge (Huang et al., 2023). Therefore, the researchers chose to investigate the saving intention and related factors for Generation Z students majoring in business and economics.

Satsios and Hadjidakis (2018) applied the Theory of Planned Behavior in investigating saving behavior among Pomak households, and found that perceived behavioral control had a positive effect on saving intention. Peiris (2021) studied the effect of financial knowledge on saving among employed individuals, and found that financial insights had a substantial effect on saving intention. The effects on saving intention of demographic factors, financial insights, or the ability of individuals to control themselves have been examined previously (e.g., Davis & Hustvedt, 2012; Keat et al., 2020; Shim et

al., 2009). However, equivalent studies on the impact of the aforementioned factors on saving intention have been few in Vietnam, especially among university students, as most of the preceding studies were conducted among employed individuals and households.

To fill this research gap, the Theory of Planned Behavior (TPB) was used in this study, which posits that attitude, subjective norms, and perceived behavioral control influence an individual's intention and decision-making (Ajzen, 2005). The financial well-being model proposed by Shim et al. (2009) was used to emphasize the effect of financial knowledge on saving intention of university students majoring in business and economics, with the mediating role of perceived behavioral control.

The following research issues were addressed in this study:

1. What are the differences in saving intention among demographic groups based on gender, monthly income, financial support from family, and household living arrangement?
2. How do financial knowledge and perceived behavioral control affect saving intention?
3. How does perceived behavior control affect the relationship between financial knowledge and saving intention of university students?

Literature Review

Saving Intention

Lewis et al. (1995) and Warneryd (1999) illustrated that saving can be viewed as the outcome of a decision-making process, representing the regular allocation of resources. The act of consistent saving was driven by future considerations, such as unforeseen expenses or upcoming goals, which compelled individuals to set aside income (Ismail et al., 2013). These considerations prompted individuals to develop the intention to save, defined as the inclination to commit to the behavior of accumulating money for unforeseen events or future achievements (Widyastuti et al., 2016). We examined saving intention from the standpoint of utilizing surplus income after consumption to accumulate funds for the future through various methods, such as saving money in deposit accounts, purchasing life insurance, or acquiring and storing gold.

Investigators have employed the TPB of Ajzen (1991) to investigate saving intention (e.g., Do et al., 2023; Mohamed & Mohamed, 2018; Nizar et al., 2021). Using this theory as a foundation, Shim et al. (2009) formulated a model for student financial well-being, wherein factors such as financial knowledge, financial attitudes, subjective norms, and perceived behavioral control served as determinants influencing financial behavioral intention. Others have investigated the influence of financial knowledge on the dependent variable of saving intention (Peiris, 2021; Yuniningsih et al., 2022). The combination of the TPB model and the factor of financial knowledge in predicting saving intention was also explored by Widjaja et al. (2020) and Widyastuti et al. (2016).

The impact of financial knowledge on saving intention has remained inconclusive. While studies by Peiris (2021) and Widjaja et al. (2020) indicated that financial knowledge strongly influenced the formation of saving intention, others were unable to show a statistically significant relationship (Widyastuti et al., 2016; Yuniningsih et al., 2022). Moreover, these studies primarily surveyed working individuals, with potential variations in saving intention compared to the situation with university students (Ando & Modigliani, 1963). Nevertheless, in the context of Vietnam particularly among Generation Z students, there was a lack of research on the application of the Planned Behavior Theory and the financial knowledge factor in predicting saving intention.

Perceived Behavioral Control

Perceived behavioral control has been defined as an individual's perception of how easy or difficult it is to perform a behavior (Ajzen, 1991). Perceived behavioral control represented the degree of control over the performance of the behavior, rather than the outcome of the behavior (Ajzen, 2002). In the context of saving, perceived behavioral control is used to describe an individual's perception of having the necessary knowledge and resources to perform saving behavior, i.e., the perception of the degree of control an individual has over one's own saving behavior.

The research of Satsios and Hadjidakis (2018) on households in Pomak, Greece, showed that the perceived behavioral control factor could explain 31.5% of the variation in the saving intention factor.

In the Asian context, a study on community college students in Malaysia conducted by Nizar et al. (2021), showed that perceived behavioral control had a positive statistical effect for saving intention of .302, which meant that self-control impacted behavioral intention. The easier that students felt it was to save, the more likely they were to form saving intentions. Similar results and conclusions have come from other studies, which indicated that perception of the degree of control, or perceived behavioral control, was a significant factor influencing the intention to perform saving behavior (Davis & Hustvedt, 2012; Sari et al., 2023). In Vietnam, Hang et al. (2023) highlighted that individuals who perceived a sense of control over their financial situation might develop an intention to save, while a lack of control over their finances could diminish such inclinations. However, research in Malaysia on low-income households showed that feelings about control of saving did not have a significant effect on saving intention (Rabun et al., 2023). This might have occurred for the simple reason that low-income individuals find it hard to save money.

Based on the results of the past studies, we proposed the first hypothesis:

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

Financial Knowledge

The definition of financial knowledge has been discussed frequently in many papers. The majority of researchers have treated financial literacy and financial knowledge as interchangeable terms (Huang et al., 2013; Lusardi & Mitchell, 2014), a perspective adopted in the present study. Worthington (2006) defined financial knowledge as the ability to apply mathematical knowledge and understanding of financial terminology. In addition, financial knowledge was defined by Schagen and Lines (1996) as the ability to make informed judgments and effective decisions regarding the use and management of money. Thilakam (2012) highlighted that financial knowledge was related to the ability to understand finances, which referred to the set of skills and knowledge that enable an individual to make informed and effective decisions regarding financial issues. We utilized the concept of financial knowledge proposed by Thilakam (2012).

The influence of financial knowledge on the intention to save has been debated. Widjaja et al. (2020) showed that financial knowledge had the strongest influence on saving intention, with an impact level given at .650. This meant that the deeper an individual's financial knowledge, the stronger was the intention to save. Research conducted by Shim et al. (2009) on undergraduate and graduate university students in the southwestern United States showed that financial knowledge had a modest impact on financial behaviors, including saving ($\beta = .10$). This implied that increasing financial knowledge could increase an individuals' saving intention. However, some studies have shown that financial knowledge and saving intention are not related (Hati et al., 2020; Keat et al., 2020). This means that even with low financial knowledge, individuals still intended to save, and conversely an individual with good financial knowledge might not be motivated to save.

In Vietnam, Nguyen and Doan (2020) found that financial knowledge positively influenced saving behavior. However, a certain distinction exists between an individual's intention to perform a behavior and the actual behavior (Sheeran & Webb, 2016). The direct relationship between financial knowledge and saving intention has not been thoroughly investigated in Vietnam, especially among the younger generation. Therefore, the following hypothesis was proposed.

H₂: Financial knowledge has a positive impact on saving intention.

Research in Malaysia among working people aged 40, which focused on the intention to save for retirement, showed that financial knowledge was a strong factor impacting perceived behavioral control (She et al., 2023). The investigators suggested that individuals with a high level of financial knowledge could demonstrate the ability to understand the consequences of overspending, which was associated with the perception of behavioral control. Hence, a good financial knowledge could increase individuals' level of control over their behavior to better manage their finances, or such knowledge might lead individuals to think that saving was easier. Approaching financial knowledge from the perspective of planning preparedness, Croy et al. (2010) showed that financial knowledge was a significant factor impacting perceived behavioral control. This meant that financial knowledge

was associated with financial self-beliefs, meaning that a positive change in financial knowledge could lead to positive changes in perceived behavior control. Hence, the third hypothesis was proposed:

H₃: Financial knowledge has a positive impact on perceived behavioral control.

Sobaih and Elshaer (2023) examined the intention of students to participate in financial activities, particularly investment activities, at three leading public universities in Saudi Arabia. They found a significant positive mediating effect of perceived behavioral control in the relationship between financial knowledge and behavioral intention. Sufficient financial knowledge could enhance students' confidence in their skills and capabilities, thereby fostering an increased intention to participate in financial activities. Similarly, Mulyono (2021) in Indonesia found that individuals with strong financial knowledge excelled in analyzing and managing their personal financial situations. This demonstrated that financial competency ultimately elevated the intention to participate in financial activities. Recognizing the absence of studies exploring the mediating role of perceived behavioral control in the relationship between financial knowledge and saving intention, the present research team formulated the fourth hypothesis:

H₄: Financial knowledge positively influences saving intention through the mediating effect of perceived behavioral control.

Control Variables

Gender. Various opinions have been expressed about the influence of gender on saving intention. Qiao (2012) indicated that there were no significant differences in financial behaviors between male and female college students, including saving. Fisher (2010) also reached a similar conclusion, and it seemed that the difference between men and women in saving was often associated with the purpose of their savings, and their actual saving behavior.

Bashir et al. (2013) indicated that a higher percentage of males saved as compared to females. However, Fishbein and Ajzen (1977) pointed out that intention and actual behavior, including financial behavior, were dissimilar. Actually, the gap between intention and behavior was significant. Therefore, the following hypothesis was proposed:

H_{5a}: There is a difference in saving intention between respondents of different genders.

Monthly income and family's financial support levels. Friedman (1957) indicated that savings in households was stable and did not depend on income differences, while Dharmarathna and Kumari (2021) obtained the opposite result. Maison et al. (2019) also pointed out the positive and significant relationship between individuals' financial situations and their saving status. However, Sherraden et al. (2004) indicated that the relationship between income level and saving was negative. Since the previous results seemed contradictory, the following hypothesis was formulated.

H_{5b}: There is a difference in saving intention among respondents with different monthly income levels.

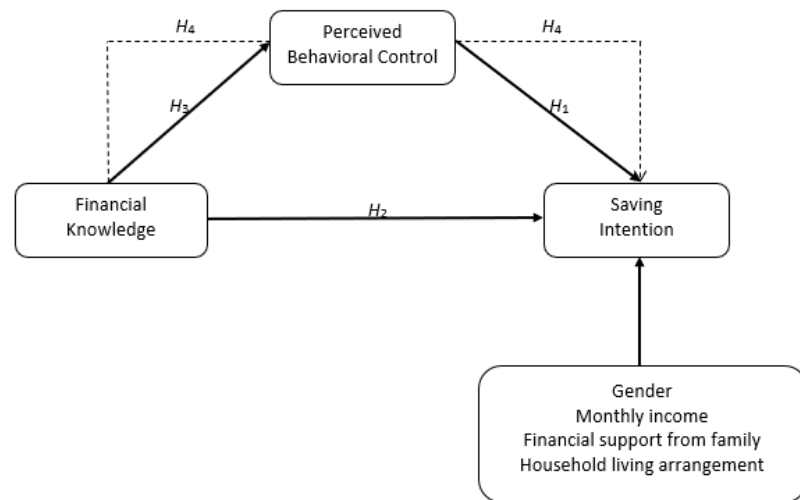
Additionally, due to the fact that our research targeted university students with modest and unstable incomes, and many depended on financial aid from family, another hypothesis was proposed to shed light on the current issue:

H_{5c}: There is a difference in saving intention among respondents with different family financial support levels.

Household living arrangements. This item refers to the organization and makeup of a person's home, encompassing the number of individuals in the household and their interrelationships with each other (Russel & Breaux, 2019). While there was no previous research regarding this issue, our qualitative research specifically indicated that students who lived in different social environments were thereby influenced in their tendencies to save. Therefore, we proposed a final hypothesis:

H_{5d}: There is a difference in saving intention among respondents with different household living arrangements.

Figure 1 *The Proposed Research Model*



Methodology

Qualitative and quantitative methods were used: for the qualitative method, in-depth interviews were conducted lasting from 20–30 min to get a comprehensive view of the saving intention of university students studying business and economics. Ten participants joined the in-depth interviews. Through the participants' answers and observations of their behavior, preliminary awareness of their intention to save money was obtained, as well as some information being gained about the factors that influenced the intention of saving. Perceived behavior control and financial knowledge were predicted to have a positive impact on saving intention.

In the quantitative research, questionnaires were distributed via online as a Google Form, with 19 questions related to Generation Z students studying business and economics at universities in provinces and cities in Vietnam. The questionnaires were randomly distributed; the number of surveys received was 640, of which 625 responses were valid. Financial support given is shown in Table 1. Males constituted 18.7% of the survey population and females 81.3%.

Table 1 *Financial Support Received by the Respondents (N = 625)*

Feature Considered	Percentage	Feature Considered	Percentage
<i>Monthly Income</i>		<i>Family's Financial Support Levels</i>	
Below VND 1 million	13.8	Below VND 2 million	32.0
VND 1 million to VND 3 million	24.6	VND 2 million to VND 3 million	26.4
VND 3 million to VND 5 million	6.7	VND 3 million to VND 4 million	15.7
VND 5 million to VND 7 million	5.9	More than VND 4 million	12.5
More than VND 7 million	5.9	No family's financial support	13.4
No monthly income	43.1		

The measurement scales for the factors, namely, financial knowledge, perceived behavioral control, and saving intention were all evaluated based on a 5-point Likert scale. The questionnaire propositions are shown in Table 2.

The data analysis process involved sequential steps, starting with Reliability Analysis, followed by Exploratory Factor Analysis, Confirmatory Factor Analysis, and Structural Equation Modeling. Cronbach's Alpha was employed to assess the scale's reliability. During the Exploratory Factor Analysis stage, the Kaiser Meyer-Olkin (KMO) measure was utilized to evaluate the validity of factor analysis. The Rotated Component Matrix was used to identify robust statistically observed variables, retaining those with a factor loading coefficient greater than or equal to .50 and appearing only once. Variables not meeting these criteria were excluded (Hair et al., 1998).

Table 2 *Measurement Scales for Variables*

Variable	Statement	Source
Financial Knowledge	I understand financial concepts and terminology.	Widyastuti et al. (2016)
	I can combine skills, resources and knowledge to make financial decisions.	
	I have the ability to discern financial decisions and discuss financial issues without feeling overwhelmed.	
	I can make effective financial choices.	
Perceived Behavioral Control	I believe I have the ability to save.	Kidwell & Jewell (2003)
	If it were up to me to save, I would be confident that I could save.	
	Whether I save is entirely up to me.	
	I am confident that I can save.	
	I feel I have control over my own savings.	
Saving Intention	I am interested in starting to save money.	Zhao et al. (2005), Armitage & Conner (2001), and Linan & Chen (2009)
	I desire to have savings.	
	I am likely to save money in the future.	
	I have a very clear intention of starting to save money.	
	I will try my best to save money.	
	My goal is to have savings in the future.	

Confirmatory Factor Analysis followed and was designed to determine, test, and adjust the measurement model. Finally, Structural Equation Modeling was employed to analyze multidimensional relationships among multiple variables, allowing conclusions to be drawn about hypotheses (Haenlein & Kaplan, 2004).

Results

Cronbach's Alpha Values

Cronbach's Alpha was determined for all variables measuring scales, and all values were greater than .75 for accepted items. Peterson (1994) stated that a minimum Cronbach's Alpha value for a variable to be considered acceptable was .70. Hence, the analysis demonstrated that all observed variables had adequate reliability. The Corrected Item-Total Correlation values calculated were all higher than the value (.30) specified by Nunnally et al. (1994) as indicating acceptable measurement scales.

Exploratory Factor Analysis

The Bartlett test was used to determine whether or not the observed variables were correlated, whereas the KMO coefficient was adopted to assess the appropriateness of factor analysis. Hair et al. (2010) stated that combining independent and dependent variables in a single factor analysis and then using the resultant factors to support dependence relationships was inappropriate. Thus, each of these variables were examined independently. The results of the summarized analysis are shown in Table 3.

Table 3 *Summarized Exploratory Factor Analysis Results*

Item	KMO Value	Sig.	Variance Explained (%)	Factor Loading	Conclusion
FK	.796	.000	65.92	> .50	Qualified for analysis
PBC	.821	.000	73.82	> .50	Qualified for analysis
IN	.882	.000	63.24	> .50	Qualified for analysis

Note. FK = financial knowledge; PBC = Perceived behavioural control; IN = Saving intention.

The results obtained showed that the KMO values of the variables were within the required range of .50 to 1.0 suggesting that exploratory factor analysis was pertinent to the data obtained from the research survey. The results featured under Total Variance Explained for financial knowledge, perceived behavioral control, and saving intention were all higher than 50%, implying that the Exploratory Factor Analysis model was appropriate. According to Hair et al. (2010), an observed variable with a loading factor of .50 was a good quality observed variable, and the minimum should be .30. All the variables used in the research had a loading factor value above .50, indicating that the observed variables were statistically significant. All the variables, as well as observed variables, were qualified for the next phase of analyzing.

Model Fit

The model fit testing data obtained are shown in Table 4. The quality of the suggested research model using Confirmatory Factor Analysis was evaluated after testing if the measurement model and the data met the requirements. The criteria outlined by Hair et al. (2010) were employed.

Table 4 *The Test Result of Model Fit*

Analysis	Test Result	Cut-off Criteria	Assessment
CMIN/df	4.173	CMIN/df ≤ 2 – Good CMIN/df ≤ 5 – Acceptable	Acceptable
CFI	0.948	CFI $\geq .90$ – Good CFI $\geq .95$ – Very good CFI $\geq .80$ – Acceptable	Good
GFI	0.930	GFI $\geq .90$ – Good GFI $\geq .95$ – Very good	Good
RMSEA	0.071	RMSEA $\leq .08$ – Acceptable RMSEA $\leq .03$ – Good	Acceptable

The above results showed that the model fit indicators varied from acceptable to good. It signified that the research model was appropriate with the data obtained, and further analysis was justified.

Hypothesis Testing

The research group used 1,000 bootstrap samples and 95% confidence intervals to examine the direct and indirect effects. Table 5 shows that financial knowledge had a direct effect on perceived behavioral control and saving intention, and perceived behavioral also directly affected saving intention with a significance value below .05. The analysis results also indicated that financial knowledge had an indirect effect on saving intention, with a significance-value of .001.

Table 5 *Bootstrap Result for Direct and Indirect Effects*

Direct Effect	FK	PBC	IN
PBC	.003		–
IN	.059	.002	–
Indirect Effect			
PBC	–	–	–
IN	.001	–	–

Note. FK = financial knowledge; PBC = Perceived behavioural control; IN = Saving intention.

In order to further examine the relationship between the variables, Structural Equation Modeling techniques were used. It was found that perceived behavioral control positively influenced saving intention with a standardized regression weight of .562, and the p -value coefficient was below .05. Therefore, H_1 was supported. Hypothesis 2 was rejected as the p -value coefficient was above .05, so financial knowledge did not influence saving intention. On the other hand, financial knowledge had a significant impact on perceived behavioral control ($\beta = .431$). In addition, saving intention was

positively influenced by financial knowledge through the mediation of perceived behavioral control, with a standardized regression coefficient of .243 and p -value coefficient below .05. Therefore, H_3 and H_4 were supported.

The Differences in Saving Intention Based on Demographic Variables

For gender, the t -test significance was $.011 < .05$, which meant there was a difference in the average saving intention between different genders and that H_{5a} was supported. In more detail, the statistical results indicated that the average savings intention for males was 4.25 (maximum range up to 5.0), while for females, it was 4.07. Therefore, it can be concluded that males had a higher average intention to save than females. Although females made up the majority of respondents (81.3%), the sample structure reflected a difference consistent with the reality in Vietnam, where there are more female students studying in the field of business and economics compared to male students.

In terms of financial support from family, the p -value of the ANOVA test was .118, which did not reach statistical significance. This meant there was no difference in saving intention among students with different levels of family financial support. Hence, Hypothesis 5_c was rejected.

In addition, the data showed that students with different income levels had different average saving intentions ($p = .002$). Moreover, the results also indicated that individuals with incomes ranging from VND 3 million to VND 5 million had the highest saving intention, and the lowest were those with incomes ranging from VND 5 million to VND 7 million. Thus, Hypothesis 5_b was supported.

Finally, for household living arrangements, the p -value was .000, which meant that there was a significant difference in the average saving intention among students living with family, living with friends, and living alone. In detail, the data indicated that students living alone had the lowest average saving intention of the three groups, with the highest being those living with friends. This meant that Hypothesis 5_d was supported.

Discussion

The results indicated that the influence of perceived behavioral control on saving intention is significantly high, accounting for up to 56.2% of variance. This outcome suggests that if students believe saving is easy and have the ability to do it, their saving intention are likely to be higher. The previous studies of Davis and Hustvedt (2012), Nizar et al. (2021), Satsios and Hadjidakis (2018), and others have also shown similar results. However, the impact of perceived behavioral control on saving intention in our study context is the greatest. This means that for Vietnamese students majoring in business and economics, being able to control their own financial behaviors is very important when aiming to achieve saving goals in the future. This also emphasizes the essential role of self-control skills in the process of personal financial management.

The data show that financial knowledge had no impact on saving intention, which can be explained by the characteristics of the study participants. All respondents were students majoring in business and economics, implying a certain level of financial knowledge. The findings of Grable and Joo (2000) indicated a positive correlation between increased financial knowledge and greater risk tolerance. Additionally, Nguyen et al. (2016) highlighted that investors with a higher risk tolerance tended to allocate a larger portion of their investments to risky assets. Therefore, students majoring in business and economics tended to invest more than save, with the expectation of gaining experience, applying theory knowledge into practice, and furthermore generating larger amounts of money in the future. However, with the mediating effect of perceived behavioral control, financial knowledge had a positive impact on saving intention, with an influence level of 24.3%. Mulyono (2021) and Sobaih and Elshaer (2023) came to a similar conclusion. The results suggest that a solid financial knowledge foundation can help students develop better expense management skills, as it provides essential insights into personal finance and how to manage financial resources. Thus, the intention to save is strengthened.

Similar to studies of Croy et al. (2010), Serido et al. (2013), and She et al. (2023), our data also indicated that financial knowledge strongly impacts perceived behavioral control, evidenced by an impact level of 43.1%. Financial knowledge helps university students make financial decisions wisely

because they have to adopt a spending plan to ensure they do not exceed their financial capacity.

Additionally, the results illustrated that male students had higher saving intention than females. Female students often have more personal spending needs, such as buying clothes, cosmetics, and hair care, while the spending needs of males are simpler. Besides, monthly income level also impacts on the intention to save. More specifically, students who generated from VND 5 million to VND 7 million had a tendency to spend more and intended to save less each month compared to other income groups, a conclusion in line with the data of Sherraden et al. (2004). With a high income level, individuals can feel financially safe, and are often willing to purchase luxury goods. Furthermore, household living arrangements constituted an important influence on students' intention to create a saving plan. When living alone, they have to cover all expenses for renting, food, and transportation. Therefore, the amount of money they can set aside is often less than those who live with friends, because they can share these expenses with each other.

This study contributes to refining the theoretical framework on the impact of financial knowledge on saving intention by investigating the mediating role of perceived behavioral control. By focusing on young individuals, the study also enhances the research model concerning the financial health and financial well-being of future generations.

Limitations, Implications, and Future Research

Our investigation had some shortcomings. First, the sample size used for our research was limited. Moreover, we did not choose ppils from other majors; instead, we concentrated on university students studying business and economics, so this convenience sampling may have introduced selection bias and affected the validity of the research results. Third, theoretical limitations should be addressed and discussed. Our research study was done using the Theory of Planned Behavior, but we have focused on just one factor of this basic theory—perceived behavior control—and did not examine two others, which are attitude and subjective norms. Furthermore, there might be other factors influencing saving intention besides financial knowledge, perceived behavior control, and control variables.

Based on these limitations, future works may broaden the scope to include wider samples from other fields to obtain more comprehensive responses and reliable results. Moreover, future researchers should track and compare with historical results to make outcomes more generalizable. Upcoming works should include more variables related to the base theory as mentioned above, and other independent variables including risk tolerance, social influence, or self assurance.

Implications

Financial institutions offering saving products. First, as students may have difficulties with some real-world situations and require expert assistance from financial advisors, institutions may assist and counsel students who wish to save by making deposits. Second, financial institutions should establish connections with universities to spread knowledge about the advantages of early savings. Additionally, they should add special saving products for university students, because that encourages them to increase their saving intention. In order to reach the target audiences in the most effective and efficient way, organizations should focus on designing their communication messages and campaigns. Specifically, firms may deliver content that provides audiences with financial knowledge, hence making them feel that saving is easy, and eventually boosting their saving intention.

Educational institutions. First, it is recommended that Vietnamese educational institutions should add some subjects related to Personal Finance in their curricular programs because this is related directly to students' awareness and to their saving intention. Moreover, some additional classes about specific saving and investing topics would be a wise choice that could encourage students' intention to save. Second, these institutions could work with well-known speakers, influencers, or entrepreneurs to provide public speaking opportunities to address students. This may have an impact on students' intention to save because the majority of prosperous businessmen and entrepreneurs are often more mature, experienced, and able to impart their life and professional experiences to

younger people, thus influencing students to save more.

University students. According to our research, students' saving intention depends on their income levels and whether they are living with family, friends, or alone. Therefore, it is advised that students with a high monthly income level (5 million to 7 million VND) focus more on learning how to budget their expenses so that they have money left over at the end of each month. Students who live alone should also make a list of everything they need to buy in order to make the most of their income and raise the responsibility and awareness about saving. Second, as financial literacy contradicts our first premise, and the fact that individuals between the ages of 18 and 24 are more likely to invest in securities and foreign exchange markets, students who possess a high degree of financial knowledge ought to understand potential investment risks.

Conclusions

To sum up, the research sheds light on undiscovered issues regarding the influence of financial knowledge on the saving intention of Generation Z students majoring in business and economics in Vietnam. Specifically, financial knowledge exerted no direct impact on saving intention, but it showed an indirect relationship with saving intention, catalyzed by the mediating role of perceived behavioral control. Moreover, perceived behavior control had a strong impact on saving intention. The research also indicated that students who live with their friends are most likely to form saving intentions, and students who have a moderate monthly income, from VND 3 to 5 million, had the highest saving intention. These results can be applied by educational institutions, financial institutions offering saving products, and individual students themselves to promote the saving intention among Generation Z business and economics students in Vietnam.

References

- Ando, A., & Modigliani, F. (1963). The "Life Cycle" hypothesis of saving: Aggregate implications and tests. *The American Economic Review*, 53(1), 55–84. <http://www.jstor.org/stable/1817129>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, 32(4), 665–683. <https://doi.org/10.1111/j.1559-1816.2002.tb00236.x>
- Ajzen, I. (2005). *Attitudes, personality and behaviour*. McGraw-Hill Education.
- Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, 84(5), 888–918. <https://doi.org/10.1037/0033-2909.84.5.888>
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, 40(4), 471–499. <https://doi.org/10.1348/014466601164939>
- Backbase. (2021, September 8). *Financial wellness & digital money management apps the key to igniting Vietnam's digital banking boom*. Backbase. <https://www.backbase.com/press/financial-wellness-digital-money-management-apps-the-key-to-igniting-vietnams-digital-banking-boom>
- Bashir, T., Hassan, A., Nazir, S., Baber, A., & Shahid, W. (2013). Gender differences in saving behavior and its determinants. *IOSR Journal of Business and Management*, 9(6), 74–86. <https://www.iosrjournals.org/iosr-jbm/papers/Vol9-issue6/M0967486.pdf>
- Credit Karma. (2023). More than half of Gen Z consider themselves part of the FIRE movement, despite little to no savings. <https://www.creditkarma.com/about/commentary/more-than-half-of-gen-z-consider-themselves-part-of-the-fire-movement-despite-little-to-no-savings>
- Croy, G., Gerrans, P., & Speelman, C. (2010). The role and relevance of domain knowledge, perceptions of planning importance, and risk tolerance in predicting savings intentions. *Journal of Economic Psychology*, 31(6), 860–871. <https://doi.org/10.1016/j.joep.2010.06.002>
- Davis, K., & Hustvedt, G. (2012). It's a matter of control: Saving for retirement. *International Review of Social Sciences and Humanities*, 3(2), 248–261.
- Dharmarathna, W.M.K.T., & Kumari, D.A.T (2021). Factors affecting young customers' saving intention: An integrative review in Sri Lankan context. *Asian Journal of Interdisciplinary Research*, 4(2), 1–14.
- Do, H. L., Vu, T. M. P., Vu, N. M., Nguyen, D. T., & Tran, T. V. (2023). Investigating the effect of future orientation on saving intention of Generation Z's university students in Vietnam's northern region. *International Journal of Business, Economics, and Social Development*, 4(4), 229–237. <https://doi.org/10.46336/ijbesd.v4i4.534>

- Fisher, P. J. (2010). Gender differences in personal saving behaviors. *Journal of Financial Counseling and Planning*, 21(1), 14–24. <https://psycnet.apa.org/record/2011-18550-002>
- Friedman, M. (1957). *A theory of the consumption function*. Princeton University Press.
- Grable, J. E., & Joo, S.-H. (2000). A cross-disciplinary examination of financial risk tolerance. *Consumer Interests Annual*, 46, 151–157. <https://www.consumerinterests.org/assets/docs/CIA/CIA2000/grablejoo.pdf>.
- Haenlein, M., & Kaplan, A. M. (2004). A beginner's guide to partial least squares analysis. *Understanding Statistics*, 3(4), 283–297. https://doi.org/10.1207/s15328031us0304_4
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (1998). *Multivariate data analysis* (5th ed.). Prentice-Hall.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Pearson.
- Hang, D. T. T., Ali, M., Van, M. N., Phuong, L. N., & Huu, H. N. (2023). Predicting the saving intention of individual investors in the context of the pandemic. *Journal of Hunan University Natural Sciences*, 50(7), 122–135. <https://doi.org/10.55463/issn.1674-2974.50.7.12>
- Hati, S. R. H., Wibowo, S. S., & Safira, A. (2020). The antecedents of Muslim customers' intention to invest in an Islamic bank's term deposits: Evidence from a Muslim majority country. *Journal of Islamic Marketing*, 12(7), 1363–1384. <https://doi.org/10.1108/JIMA-01-2020-0007>
- Huang, J., Nam, Y., & Sherraden, M. S. (2013). Financial knowledge and child development account policy: A test of financial capability. *Journal of Consumer Affairs*, 47(1), 1–26.
- Huang, W., Liao, X., Li, F., & Yao, P. (2023). Does enrolling in finance-related majors improve financial habits? A case study of China's college students. *Asia Pacific Education Review*, 1–14. <https://doi.org/10.1007/s12564-023-09856-y>
- Ismail, S., Kamis, R., Hashim, N., Harun, H., & Khairuddin, N.S. (2013). An empirical investigation on determinants of attitude towards saving behavior. *Procedia Economics and Finance*, 1–11. https://www.academia.edu/5015140/An_Empirical_Investigation_on_Determinants_of_Attitude_towards_Saving_Behavior
- Keat, P. T. B., Zakaria, W. N. W., & Mohdali, R. (2020). Factors influencing purchase intention of life insurance among engineering students. *Open International Journal of Informatics*, 8(1), 1–9. <https://oiji.utm.my/index.php/oiji/article/view/32>
- Kidwell, B., & Jewell, R. D. (2003). An examination of perceived behavioral control: Internal and external influences on intention. *Psychology & Marketing*, 20(7), 625–642. <https://doi.org/10.1002/mar.10089>
- Lewis, A., Webley, P., & Furnham, A. (1995). *The new economic mind: The social psychology of economic behaviour* (2nd ed.). Harvester Wheatsheaf.
- Liñán, F., & Chen, Y.-W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 33(3), 593–617. <https://doi.org/10.1111/j.1540-6520.2009.00318.x>
- Lusardi, A., & Mitchell, O.S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44. <https://doi.org/10.1257/jel.52.1.5>
- Maison, D., Marchlewska, M., Sekścińska, K., Rudzinska-Wojciechowska, J., & Łozowski, F. (2019). You don't have to be rich to save money: On the relationship between objective versus subjective financial situation and having savings. *PLoS One*, 14(4), e0214396. <https://doi.org/10.1371/journal.pone.0214396>
- Mohamed Said, I., & Mohamed, A. M. (2018). Psychological determinations of intention to save money: The influence of attitudes, subjective norms, and perceived behavioral control. *International Journal of Social Science and Human Research*, 1(1), 61–71.
- Mulyono, K.B. (2021). Decision model for saving stocks based on TPB and financial literacy. *Dinamika Pendidikan*, 16(1), 94–102. <https://doi.org/10.15294/dp.v16i1.29164>
- Nguyen, L., Gallery, G., & Newton, C. (2016). The influence of financial risk tolerance on investment decision-making in a financial advice context. *Australasian Accounting, Business and Finance Journal*, 10(3), 3–22. <http://dx.doi.org/10.14453/aabfj.v10i3.2>
- Nguyen, V. T., & Doan, M. D. (2020). The correlation between financial literacy and personal saving behavior in Vietnam. *Asian Economic and Financial Review*, 10(6), 590. <https://doi.org/10.18488/journal.aefr.2020.106.590.603>
- Nizar, N., Choban, U., & Hussain, M.H.A. (2021). Application of TPB on the saving intention among the students of community colleges: Moderating effect of mobile applications. *Global Business and Management Research*, 13(4), 263–275.
- Nunnally, J. C., & Bernstein, I. H. (1994). The assessment of reliability. *Psychometric Theory*, 3, 248–292.
- Peiris, T. U. I. (2021). Effect of financial literacy on individual savings behavior; the mediation role of intention to

- saving. *European Journal of Business and Management Research*, 6(5), 94–99.
- Peterson, R. A. (1994). A meta-analysis of Cronbach's coefficient alpha. *Journal of Consumer Research*, 21(2), 381–391. <https://www.jstor.org/stable/2489828>
- Qiao, X. (2012). *Gender differences in saving and investing behaviors* [Research paper, Arcada University]. <https://core.ac.uk/download/pdf/38061589.pdf>
- Rabun, M. N., Marzuki, N. N. A., Abd Mutalib, N., & Othman, M. H. (2023). Do they intend to save? Saving behaviour intention among urban dwellers from low-income households. *Environment-Behaviour Proceedings Journal*, 8(SI15), 271–275. <https://doi.org/10.21834/e-bpj.v8iSI15.5102>.
- Russell, D., Breaux, E. (2019). Living arrangements in later life (pp. 1–7). In D. Gu & M. Dupre (Eds.), *Encyclopedia of gerontology and population aging*. Springer, Cham. https://doi.org/10.1007/978-3-319-69892-2_324-1
- Sari, I. K., Syarief, M. E., & Suhartanto, D. (2023). Intention to saving of Z generation at Islamic Bank in Bandung Raya. *Indonesian Journal of Economics and Management*, 3(2), 404–417.
- Satsios, N., & Hadjidakis, S. (2018). Applying the Theory of Planned Behaviour (TPB) in saving behaviour of Pomak households. *International Journal of Financial Research*, 9(2), 122–133.
- Schagen, S., & Lines, A. (1996). *Financial literacy in adult life: A report to the Natwest Group Charitable Trust* (pp. 36–45). National Foundation for Educational Research.
- Serido, J., Shim, S., & Tang, C. (2013). A developmental model of financial capability: A framework for promoting a successful transition to adulthood. *International Journal of Behavioral Development*, 37(4), 287–297. <https://doi.org/10.1177/0165025413479476>
- She, L., Rasiah, R., Weissmann, M. A., & Kaur, H. (2023). Using the Theory of Planned Behaviour to explore predictors of financial behaviour among working adults in Malaysia. *FIB Business Review*, 13(1), 118–135. <https://doi.org/10.1177/231971452311693>
- Sheeran, P., & Webb, T. L. (2016). The intention–behavior gap. *Social and Personality Psychology Compass*, 10(9), 503–518. <https://doi.org/10.1111/spc3.12265>
- Sherraden, M., Schreiner, M., & Beverly, S. (2003). Income, institutions, and saving performance in individual development accounts. *Economic Development Quarterly*, 17(1), 95–112. <https://core.ac.uk/download/pdf/233216913.pdf>
- Shim, S., Xiao, J. J., Barber, B. L., & Lyons, A. C. (2009). Pathways to life success: A conceptual model of financial well-being for young adults. *Journal of Applied Developmental Psychology*, 30(6), 708–723. <https://doi.org/10.1016/j.appdev.2009.02.003>
- Sobaih, A. E. E., & Elshaer, I. A. (2023). Risk-taking, financial knowledge, and risky investment intention: Expanding theory of planned behavior using a moderating-mediating model. *Mathematics*, 11(2), 453.
- Thilakam, C. (2012, September 6–7). *Financial literacy among rural masses in India* [Paper presentation]. The 2012 International Conference on Business and Management. Phuket-Thailand.
- Tien, T., & Quynh, A. (2022, December 12). *Mua sắm không kiểm soát, giới trẻ “loay hoay” với tiền* [Uncontrolled shopping, young people struggling with money]. <https://vtv.vn/xa-hoi/mua-sam-khong-kiem-soat-gioi-tre-loay-hoay-voi-tien/>.
- Warneryd, K. E. (1999). *The psychology of saving: A study of economic psychology*. Edward Elgar Publishing.
- Widjaja, I., Arifin, A., & Setini, M. (2020). The effects of financial literacy and subjective norms on saving behavior. *Management Science Letters*, 10(15), 3635–3642.
- Widyastuti, U., Suhud, U., & Sumiati, A. (2016). The impact of financial literacy on student teachers' saving intention and saving behaviour. *Mediterranean Journal of Social Sciences*, 7(6), 41–48.
- Worthington, A. C. (2006). Predicting financial literacy in Australia [Research paper, University of Wollongong]. <https://ro.uow.edu.au/cgi/viewcontent.cgi?article=1124&context=commpapers>
- Yuniningsih, Y., Santoso, B., Sari, I. M., Firdausy, A. A., & Romadhon, I. C. (2022). Financial literacy and motivation to stimulate saving behavior intention in form of bank customer deposits. *Journal of Economics, Finance and Management Studies*, 5(11), 3334–3340. <https://doi.org/10.47191/jefms/v5-i11-19>
- Zhao, H., Seibert, S. E., & Hills, G. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*, 90(6), 1265–1272. <https://doi.org/10.1037/0021-9010.90.6.1265>