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Factors affecting personal finance management behavior and financial satisfaction in Vietnam

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Abstract

This study examines financial socialization, financial knowledge, and financial attitudes in their relationships with financial behavior and financial satisfaction in personal finance management in Vietnam. Partial least square structural equation modeling was employed to analyze data collected from 294 respondents. The results show that increased interaction and communication with family members, media, peers, and the workplace in terms of financial matters lead to higher levels of financial knowledge. Moreover, greater financial knowledge is associated with a higher likelihood of engaging in recommended financial behaviors. In turn, engaging in recommended financial behaviors enhances financial satisfaction, reflecting a greater sense of contentment with financial status. Thus, financial socialization should be focused on as an important channel besides formal financial education. This study increases understanding of the determinants of personal finance management behaviors and financial satisfaction in Vietnam. The results are impactful not only for individuals and households but also for policymakers and educators.

Keywords: Financial socialization, Financial knowledge, Financial attitude, Financial behaviors, Financial satisfaction

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1. Introduction

From a macroeconomic point of view, personal finance is an essential and indispensable component of the financial system, contributing to and promoting the development of a national financial system. However, personal finance has been overlooked for many years, especially in developing countries.

From a microeconomic point of view, personal financial management (PFM) is always one of the most significant topics everyone should be aware of in order to plan for their future. However, not everyone knows how to foster appropriate PFM, especially in developing countries, including Vietnam.

Besides, good PFM behavior helps individuals to stabilize their finances, reduce financial burden when facing risks in life, achieve financial goals, enhance life quality, and attain financial satisfaction. Being financially satisfied can improve marital and life satisfaction (Berry and Williams, 1987; Mugenda *et al.*, 1990). Dissatisfaction or problems with PFM might result in marital troubles and divorce (Poduska and Allred, 1990). In addition, the weakness in PFM behavior can indirectly weaken the financial system, negatively affecting the country's economy.

On the other hand, we observe low financial literacy and low financial inclusion in Vietnam (Morgan and Trinh, 2019; FinDev Gateway, 2022). From 2020, financial inclusion has become a national strategy, as it is considered among the important pillars for sustainable development. For the financial inclusion strategy to be successful, Vietnamese individuals and households need to be fully aware of the importance of PFM behaviors and engage in these recommended behaviors. They also need to be equipped with appropriate financial knowledge and financial skills.

In some developed countries, PFM education is included in official educational programs at the school level, showing the importance of PFM. Regardless of age, PFM should focus on individuals, households, and society. Especially besides formal training, financial knowledge can be gained through informal channels, called financial socialization, through agents such as families, mass media, peers, and the workplace. Financial socialization is gaining more and more attention and can be considered a complementary way to raise financial literacy and financial satisfaction.

In Vietnam, the rise of usury, also called "black credit", based on incomprehensible models to lure customers raises the question of consumer protection and how to increase individuals' and households' knowledge and skills to avoid unexpected consequences in PFM practices. Furthermore, in Vietnam, not everyone knows the importance of PFM and has access to formal training due to its fee-based nature. However, there has been few research on financial satisfaction, especially on financial socialization and its impact on PFM in the context of Vietnam. Most of the research about PFM in Vietnam has dealt with one or more dimensions: budgeting, savings, borrowing, and investing. Nguyen and Tran (2015) and Le *et al.* (2020) are among the few ones that examine factors that affect general PFM, but financial socialization and financial satisfaction are not studied. Therefore, studying factors affecting PFM behavior and financial satisfaction and the role of financial socialization, especially in the context of Vietnam, is necessary.

This study is expected to provide evidence and add to our understanding of the determinants of PFM behaviors and financial satisfaction as well as the role of financial socialization in Vietnam. The findings can provide a theoretical and practical basis for stakeholders such as scholars, policymakers, educators, individuals, and households to find effective ways to increase financial literacy and positive financial behaviors, enhancing financial satisfaction.

The remainder of this study is structured as follows. Section 2 discusses a literature review of PFM and financial satisfaction and develops hypotheses. Section 3 develops a theoretical framework. Section 4 describes research methods, variables, and measurement scales. Sections 5 and 6 present research results, research implications, and recommendations. Finally, section 7 concludes the study.

2. Literature review

2.1 International research on personal finance management

Personal finance is everything in one's life involving money. It is a term that covers the management of individuals' and households' money, applying the principles of finance, resource management, sociology, and psychology in decision-making (Schuchardt *et al.*, 2007). Hence, it is an interdisciplinary concept.

Personal finance needs to be planned and managed. PFM, according to Deacon and Firebaugh (1988), is "the set of behaviors performed regarding the planning, implementing, and evaluating involved in the areas of cash, credit, investments, insurance and retirement and estate planning and general management". Sharing the same view, Porter and Garman (1993) constructed this concept with six dimensions, including "cash management, credit management, capital accumulation, risk management, retirement/estate planning, and general financial management" and it is a gradual uptake management behavior (Xiao and Dew, 2011). In summary, it is a multi-dimensional concept.

Personal or household finance has some distinct characteristics that distinguish it from other fields (Campbell, 2006). Nontraded assets, such as human capital, illiquid assets, constraints on borrowing ability, or complex taxation are mentioned by Campbell as special features of this field. Personal finance, therefore, must be planned and managed over long but finite horizons (Campbell, 2006).

Alternatively, PFM is defined by Billingsley *et al.* (2016) as a process that "involves translating personal financial goals into specific plans and arrangements that put these plans into action". Financial goals can differ depending on specific financial situations. However, the ultimate financial goal generally is financial satisfaction.

Financial satisfaction is a sub-construct of general well-being (Campbell, 1981). It refers to a financial status in that a consumer or family has adequate resources to live a comfortable life (Xiao, 2016). As Van Praag *et al.* (2003) suggested, financial satisfaction is a component of overall satisfaction.

As reviewed by Tufano (2009), behavioral considerations have been incorporated into and are central to any consumer or personal finance consideration. The term “financial behavior” concerns human behaviors regarding money management (Xiao, 2016). Desirable PFM behavior could improve financial well-being, while undesirable PFM behavior could harm financial well-being (Xiao, 2016). Incorporating psychology and sociology can help elucidate personal finance or PFM behaviors (Tufano, 2009). Human behavior is complicated, and the ways people conduct themselves in finance are no exception (Xiao, 2016).

PFM behaviors are influenced by various factors, which could be divided into internal and external factors, or cognitive and non-cognitive factors. Internal factors can be personality, individual psychology and cognition, family history and environment (Xiao, 2016), socio-economic characteristics (income, age, education, employment status, ethnicity), or personal characteristics (attitudes, values, emotions, beliefs), and family dynamics (culture, behaviors, and communication patterns) (Titus *et al.*, 1989). These determinants are not the same for everyone, but mostly, people can control them. On the other hand, external factors that influence PFM behavior include financial markets, peers, schools, and media (Xiao, 2016). Individuals do not directly control environmental or external factors but can only protect themselves by adapting to them. PFM behaviors also vary from culture to culture, including moral hazard, social mood, and unconscious herding (Hira, 1997; Hira *et al.*, 2013).

Cognitive factors and non-cognitive factors also influence PFM behaviors. Using the terms “cognitive and non-cognitive components” might be confusing because few abilities are cognition-free. Cognitive skills are usually assessed by IQ tests or other exams designed to measure complicated thinking (Parise and Peijnenburg, 2017). In the study of Strömbäck *et al.* (2017), non-cognitive factors are self-reported assessments of personal preferences, personality, thoughts, feelings, or behaviors, while cognitive factors are those assessed by tests of knowledge or performance. Generally, cognitive factors could be financial literacy, financial education, financial knowledge, and numeracy (Lusardi and Mitchell, 2007; Lusardi, 2012; Skagerlund *et al.*, 2018). Meanwhile, non-cognitive factors include personal feelings or thoughts, personality, personal preferences, self-control, prudence, optimism, and individual independence (Biljanovska and Palligkinis, 2015; Strömbäck *et al.*, 2017). While more and more scholars are focusing on the significance of cognitive and noncognitive abilities to explain PFM behaviors, less research has been done on how to enhance these abilities to have good PFM behaviors and achieve financial goals.

In addition, factors affecting PFM behavior can be classified from a life-cycle approach. According to Kapoor *et al.* (2018), the most important factors are life situations, personal values, emotions and personality, and economic factors. These factors change throughout the lifetime of an individual or a household, especially in life situations.

Different studies have different approaches to assessing factors affecting PFM behavior. In the literature, financial knowledge and financial attitude are among the most critical factors that are examined to have relationships with PFM behavior (Godwin, 1994; Parrotta and Johnson, 1998; Lusardi and Mitchell, 2006; Shim *et al.*, 2010; Supinah *et al.*, 2016; Xiao, 2016). In the context of Vietnam, financial socialization is an additional potential factor that can enhance sound PFM behavior, in addition to financial knowledge and attitudes.

2.2 Personal financial management research in Vietnam

PFM research has been done in Vietnam, but there is still much to develop for the Vietnam research and context. Most research about PFM in Vietnam has dealt with one or some dimensions of this topic. Very little research has been conducted on a global approach encompassing all dimensions of PFM. The majority of research is about budgeting (Le *et al.*, 2019; Phan and Dinh, 2020; Vuong and Nguyen, 2013), savings (Nguyen *et al.*, 2017; Nguyen and Le, 2019; Nguyen and Doan, 2020), borrowing (Hoang *et al.*, 2021; Chichaibelu and Waibel, 2018; Tran and Hoang, 2019; Huynh and Tran, 2021) and investing (Tran *et al.*, 2020; Tran, 2021). Recent research on personal finance, all over the world and in Vietnam as well, has extended to financial inclusion to reduce poverty, enhancing prosperity, such as savings and financial inclusion (Nguyen and Le, 2019; Nguyen and Doan, 2020), payment and financial inclusion (Phan and Dinh, 2020), or incorporated with financial literacy (Nguyen and Le, 2019).

Some studies explore PFM behavior in Vietnam during the COVID-19 pandemic (Le *et al.*, 2020). Due to the COVID-19 pandemic, despite a visible decline in the Consumer Confidence Index worldwide, Vietnam is still among the top ten Asian countries with the highest Consumer Confidence Index worldwide. This index forecasts future trends in household spending and savings based on responses about their predicted financial status, their sentiment about the general economic situation, unemployment, and saving capability. The high Consumer Confidence Index indicates positive signals and potential markets for financial management development (OECD, 2022). Also, due to the COVID-19 pandemic, individuals' and households' financial behaviors have greatly changed. They tend to decrease spending, use more digital payment methods, and increase loans. Additionally, microfinance and consumer lending have gained increasing attention. Individuals tend to engage more in the financial market when they continuously open new trading accounts in security markets. Despite its many advantages and purposes, insurance has not increased proportionally in Vietnam.

PFM in Vietnam is also analyzed in the context of the country's economic overview: a positive trend in economic development, increased household living standards with middle-income status (General Statistics Office, 2020), but relatively low financial literacy and comprehensive financial indicators compared to high-income nations. Therefore, Vietnam follows a national strategy to enhance financial inclusion and literacy (ADBI, 2017). However, most studies in Vietnam have been conducted on students or young people. Otherwise, some research works have been undertaken in some dimensions with samples of different ages from different provinces in Vietnam, such as saving behavior (Nguyen and Doan, 2020; Nguyen and Le, 2019) and payment account usage (Phan and Dinh, 2020).

Few studies have been conducted on multi-dimensional financial management behaviors in Vietnam. Nguyen and Tran's (2015) research is among the few studies on the determinants of general PFM behavior in Vietnam. The study was conducted on a sample of 307 youths from 19 to 30 years old who studied or worked in Ho Chi Minh City. The authors focus on three factors: financial knowledge, financial attitude, and locus of control. According to their results, all three key factors directly impact and contribute to 62.1% of the variance of PFM behavior.

Also, few research has been conducted in developing countries regarding financial satisfaction and determinants of financial satisfaction. Giang *et al.* (2016) examined differences between older men and women regarding financial resources and determinants associated with perceived financial satisfaction. Findings demonstrated no "perceived financial satisfaction" gap between the elderly living in cities and those living in the countryside. However, "perceived financial satisfaction" is clearly different between men and women. Besides, educational level, living area, and financial factors are significant determinants correlated with "perceived financial satisfaction" for both men and women.

2.3 Hypothesis development

Financial knowledge

The relationship between financial knowledge and PFM behavior has been studied extensively. Financial knowledge is demonstrated to exert a considerable influence on PFM, independent of how it is defined and quantified (Parrotta and Johnson, 1998). The more knowledge one has, the more likely they are to conduct desirable PFM behaviors (Titus *et al.*, 1989; Godwin and Carroll, 1986; Hira *et al.*, 1992; Mugenda *et al.*, 1990; Godwin, 1994; Sabri *et al.*, 2008). Interestingly, some research found that financial knowledge has no influence on PFM, especially in Indonesia (Herdjiono and Damanik, 2016; Dwiastanti, 2017). In Vietnam, Le *et al.* (2020) found no association between financial knowledge and PFM behaviors, unlike the results of Nguyen and Tran (2015). Thus, it is worth investigating the impact of this important and common factor on financial management in Vietnam.

Financial knowledge may also lead to sound financial decisions and financial satisfaction (Arifin, 2018). Financial knowledge is found to indirectly and positively influence financial satisfaction, as shown in the results of some research (Hilgert *et al.*, 2003; Joo and Grable, 2004; Xiao *et al.*, 2006; Ali *et al.*, 2015). However, some studies show that financial knowledge negatively impacts financial satisfaction (e.g., Mugenda *et al.*, 1990). It has been discovered that people knowledgeable in finance endeavor to achieve better living standards by using financial means and, thus, are normally dissatisfied. In contrast, those who are financially illiterate would even be unaware of their bad financial status (Joo and Grable, 2004). Similarly, little has been discovered about how financial knowledge affects financial attitude. Susan and Djajadikerta's (2017) paper is among the few studies examining and confirming financial knowledge's positive influence on financial attitude. Hence, this study hypothesizes that financial knowledge has a positive relationship with financial attitude, PFM behavior, and financial satisfaction as follows:

H1: There is a positive relationship between financial knowledge and financial attitude.

H2: There is a positive relationship between financial knowledge and PFM behaviors.

H3: There is a positive relationship between financial knowledge and financial satisfaction.

Financial socialization

Previous research has shown that financial socialization has a positive relationship with financial knowledge (Deenanath *et al.*, 2019). Studies also show that financial attitudes are statistically influenced by all of these financial socialization channels (Shim *et al.*, 2010; Supinah *et al.*, 2016). Financial socialization through different channels like courses taken, direct financial instruction from parents, and work experience will all increase the likelihood of demonstrating positive financial behaviors (Shim *et al.*, 2010; Sundarasen *et al.*, 2016). Financial socialization then significantly affects PFM practices and financial well-being in the following stages of life (Damian *et al.*, 2020; Madinga *et al.*, 2022). Based on previous studies, the following hypotheses are proposed:

H4: There is a positive relationship between financial socialization and financial knowledge.

H5: There is a positive relationship between financial socialization and financial attitude.

H6: There is a positive relationship between financial socialization and PFM behaviors.

H7: There is a positive relationship between financial socialization and financial satisfaction.

Financial attitude

Financial attitude is largely accepted to exert a significant impact on PFM behavior. Regarding financial satisfaction, as stated by Arifin (2018), if a person considers money valuable, that attitude will lead to sound financial behavior and, as a result, will increase financial satisfaction. Therefore, the following hypotheses are proposed:

H8: There is a positive relationship between financial attitude and PFM behaviors.

H9: There is a positive relationship between financial attitude and financial satisfaction.

Financial behavior

Findings from studies show that PFM behaviors have a positive and significant influence on financial satisfaction. Individuals' financial behavior has been identified as the key factor of financial satisfaction (Joo and Grable, 2004; Xiao, 2016; Arifin, 2018). Hence, the following hypothesis is proposed:

H10: There is a positive relationship between PFM and financial satisfaction.

3. Theoretical framework

To analyze the elements affecting PFM behaviors and financial satisfaction, the author uses the “family resource management model” proposed by Deacon and Firebaugh (1988) and then modified by Parrotta and Johnson (1998). The conceptual model for this study is then designed (Figure 1).

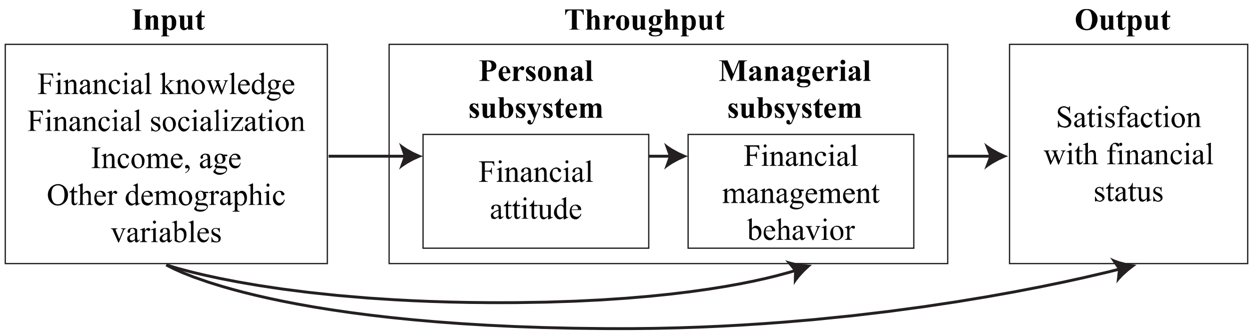

Figure 1. Conceptual model of factors affecting PFM behaviors and financial satisfaction
Source: Authors' suggestion

The system transforms “inputs” into “outputs” through the “transformation process”. Inputs to the system are classified as either material resources (e.g., savings, revenue, or net worth) or human resources (e.g., age, general education, life experience, relationships, or family support). Throughput is financial attitude and PFM behavior. This study determines output as a subjective outcome or financial satisfaction.

In the literature, financial knowledge and attitude are among the most critical factors examined in relation to PFM behavior. This study adds a new factor to the factors of the original framework, that is, financial socialization, to the characteristics of PFM behaviors.

Firstly, financial socialization is gaining more and more attention from research literature and policymakers for its important role. Generally, financial socialization is studied and then connected to outcomes such as financial attitudes, financial knowledge, financial behaviors, and financial well-being. Financial socialization is a process that, for better or for worse, intentionally or unintentionally, will happen throughout a person's life in different contexts (Xiao, 2016). By investigating whether financial socialization can influence cognitive and non-cognitive abilities, this study can answer the question raised in the literature of how to enhance cognitive and non-cognitive abilities to have good PFM behaviors and achieve financial goals.

Secondly, Vietnam is following national strategies to boost financial inclusion and literacy. Besides formal financial education, financial socialization is supposed to enlarge the channels to deliver and nurture financial knowledge, financial skills, and financial attitudes throughout one's life cycle. Specifically, resources are limited in a developing country like Vietnam and should be effectively used. Through various financial socialization agents like family, peers, schools, and media, financial socialization is expected to be an alternative way to approach most individuals and households to enhance desired PFM behavior and financial satisfaction. Thus, financial socialization is a relevant variable to insert into the model to examine its influences, together with other factors like financial knowledge and financial attitude.

4. Research methods

4.1 Variables

This research studies financial socialization, financial knowledge, and financial attitude in their relationships with financial behaviors and financial satisfaction in PFM in Vietnam. The concepts of variables refer to previous studies and are summarized in Table 1.

Table 1. Summary of variables and definitions

Variables	Definition	Sources
Personal financial management behaviors (FB)	The human behaviors related to financial management - the way people manage finance.	Xiao (2016), Arifin (2018), Deacon and Firebaugh (1988), Porter and Garman (1993), Xiao and Dew (2011)
Financial satisfaction (FS)	A person's subjective assessment (subjective perception) of the adequacy of their financial resources.	Campbell (1981), Hira and Mugenda (1999), Joo and Grable (2004)
Financial knowledge (FK)	Financial awareness and understanding of the financial concepts and procedures as well as the use of this understanding to solve financial problems.	Godwin and Carroll (1986), Titus *et al.* (1989), Mugenda *et al.* (1990), Godwin (1994), Parrotta and Johnson (1998), Marsh (2006)
Financial attitude (FA)	A state of mind, opinion, and judgment of a person about finances.	Parrotta and Johnson (1998), Pankow (2003), Yap *et al.* (2018), Arifin (2018)
Financial socialization (FSO)	A process by which individuals obtain the necessary skills, information, and attitude to maximize their ability in the financial marketplace.	Ward (1974), Sundarasen *et al.* (2016), Supinah *et al.* (2016), Xiao (2016)

Source: Authors' compilation

4.2 Measurement scales

4.2.1 Personal financial management behavior (FB)

The PFM behavior scale is derived from previous studies, considering the context of Vietnam. Financial management behavior scales need to be validated. The scales in the study of Xiao and Dew (2011), Parrotta and Johnson (1998), Porter and Garman (1993), and Titus *et al.* (1989) are considered good since they include all dimensions. The questions were graded on a five-point Likert scale ranging from 1 (never) to 5 (always). The higher the score, the more responsible one's PFM is.

4.2.2 Financial knowledge (FK)

Financial knowledge was assessed following Perry and Morris (2005). Perry and Morris (2005) used a nationwide sample. Their financial knowledge concept is a five-point Likert scale, in which individuals self-assess their knowledge in finance from 1 (know nothing) to 5 (good).

4.2.3 Financial attitudes (FA)

Rajna *et al.* (2011) developed five-point Likert scale items to assess attitudes toward PFM. Each item uses a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) to reflect how participants favor or disfavor the assertion. These questions are adapted from prior research (Rajna *et al.*, 2011; Parrotta and Johnson, 1998; Godwin and Carrol, 1986). High scores indicate a positive attitude toward PFM.

4.2.4 Financial socialization (FSO)

Five-point Likert scale items from Hira *et al.* (2013) have been adapted to measure financial socialization. Measures such as interactions with parents, peers, mass media, and the workplace are used to investigate financial socialization.

4.2.5 Financial satisfaction (FS)

No agreement has been reached on the most appropriate measure to assess financial satisfaction (Godwin, 1994). Some researchers use a single item to measure, while others use various items. To be suitable with the five-point Likert scale and to avoid asking many questions, this study adopts a single item from Joo and Grable (2004). The question is, "How satisfied are you with your current financial condition?".

4.3 Sampling and data

This study focuses on the PFM behavior of Vietnamese citizens living and working in Vietnam from 18 years old because this is the average age of individuals when participating in the labor market and can make their own financial decisions. For representativeness, the sample was collected from all three main areas of Vietnam: the Northern, the Middle, and the Southern areas, and from all ages with different income levels. Samples were collected using both convenient and random samplings. That means respondents are selected for inclusion in the sample as they are the easiest for the research to access, and each sample has an equal probability of being chosen.

The survey questionnaire was designed in stages. Firstly, based on previous studies, a questionnaire was created in English. Following recognized back-translation practices, two evaluators (not the authors) skilled in both English and Vietnamese separately translated the questionnaire: one evaluator translated from English to Vietnamese, while the other evaluator translated the questionnaire from Vietnamese to English. Expert opinions on the expected questions were collected, and then unclear or multi-meaning questions (in the questionnaire) that may confuse were adjusted. In detail, a question relating to FB6 - Paid off the credit card balance in full each month (Xiao and Dew, 2011) was adjusted. In Vietnam, not everyone uses credit cards, especially in rural areas. The purpose of this question is to ask about the behavior of respondents in paying their debt. Thus, to be suitable for the context of Vietnam, it was adjusted to be "Paid off the credit card balance in full each month/Paid all the debt when it comes due".

Based on the opinions of experts, a survey questionnaire was developed, and a small-scale survey (with 50 respondents) was conducted from 05 May to 10 May 2022. The survey was delivered both online (by sending a link to the survey on Google form) and offline (by collaborators giving printed questionnaires directly to the respondents). The data collected through the questionnaire were then analyzed descriptively and statistically using partial least square structural equation modeling (PLS-SEM) through SmartPLS 3. PLS-SEM is selected for this study as it is suitable when the analysis is concerned with testing a theoretical framework from a prediction perspective or when the structural model is complex and includes many constructs, indicators, and/or model relationships (Hair *et al.*, 2019).

The first test of the PLS-SEM model was conducted with 50 preliminary observations obtained from the pilot test. Construct reliability and validity were examined. Consequently, some of the indicators with low load factor are deleted. The refined PLS-SEM model is proposed for the main large-scale survey.

5. Research results

Through the main survey from 10 May to 24 May 2022, 300 responses were collected, of which 294 were usable. The study's sample size is acceptable for further analysis (Hair *et al.*, 2019). Respondents for the survey are of all ages over 18 years old, living in different provinces and cities in Vietnam, and having various education and income levels. Descriptive analysis of the main survey is based on the respondent's gender, age, education, and income levels (Table 2).

Table 2. Descriptive analysis of the research sample

Factors	Categories	Count	Percentage
Gender	Female	171	58.16
	Male	123	41.84
Age	18-22	110	37.42
	Over 22-30	37	12.59
	Over 30-35	47	15.99
	Over 35-45	73	24.83
	Over 45-55	20	6.8
	Over 55-60	0	0
	Over 60	7	2.38
Education	Grade 12 or lower	103	35.03
	College	80	27.21
	Bachelor	63	21.43
	Postgraduate	48	16.33
Income (monthly)	Under 10 million VND	207	70.41
	From 10 million to 18 million VND	18	16.33
	From 18 million to 32 million VND	18	6.12

Source: Authors' research sample

After completing the main survey, a preliminary test was conducted. The results show that some indicators in the model do not meet the reliability requirements with a low load factor. Indicators FB2, FB5, FB13, FA6re, FA10 have load factors less than 0.6. According to Hair *et al.* (2019), these indicators should be removed if, after removal, the model achieves the result that the coefficient of variance extracted AVE and the combined reliability value CR increases. Accordingly, all the above indicators are removed to ensure the validity of the overall model, with higher CR and AVE values. We conduct the calculations again without these indicators. Figure 2 is the new PLS-SEM model after removing the variables.

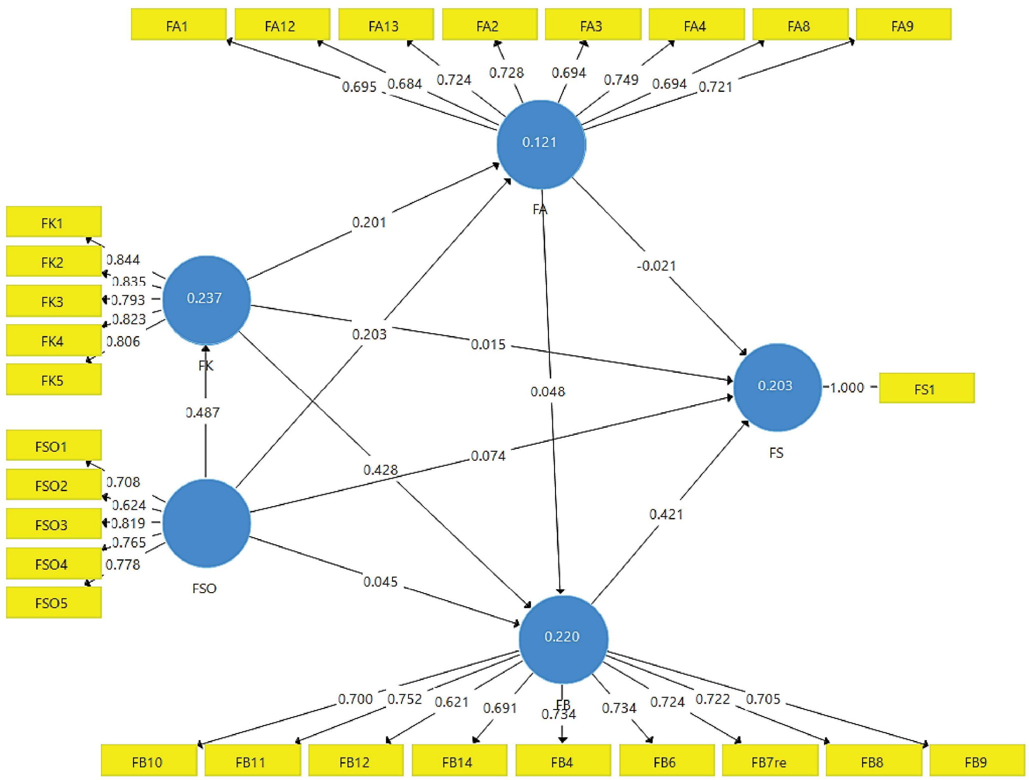

Figure 2. PLS-SEM model for the research analysis

Source: Authors' calculation

The first step in analyzing PLS-SEM outcomes is to look into the measurement models (Hair *et al.*, 2019). Assessing the measurement model involves (i) examining the indicator loadings, (ii) assessing internal consistency reliability (composite reliability or Cronbach's Alpha), (iii) assessing the convergent validity of each construct measure (AVE), (iv) assessing discriminant validity.

After the measurement model is satisfactory, the following stage is to evaluate the structural model. The coefficient of determination (R-squared), the statistical significance, and the relevance of the path coefficients are all standard assessment criteria that are addressed and analyzed. Collinearity is checked before evaluating the structural model to ensure that the regression results are not biased (Hair *et al.*, 2019).

Model fit

The standardized root mean square residual (SRMR) is "a goodness of fit measure" for PLS-SEM. This measure is presented by Henseler *et al.* (2014) and could be utilized to avoid model misspecification. A value less than 0.10, or more conservatively of 0.08, is considered a good fit. The SRMR of the model in this study is 0.078, which is smaller than 0.08, so the model is a good fit.

Construct reliability and validity

Cronbach's Alpha coefficient is a criterion to evaluate reliability. Cronbach's Alpha, which is higher than 0.7, is regarded to ensure good reliability. According to the results shown in Table 3, all Cronbach's Alpha of all latent variables meet this requirement.

Hair *et al.* (2019) suggested that the composite reliability coefficient CR is better at assessing reliability. To ensure the reliability and validity of the groups of variables, the aggregate reliability CR value must be greater than 0.7. Table 4 provides further evidence of the construct reliability and validity of the model, with CR all being higher than 0.7.

Besides, the coefficient of variance extracted AVE must be greater than 0.5 to ensure the convergent validity. Suppose the convergent validity is not satisfied, the indicators have no correlation with other indicators in the same latent variable. In that case, its indicator components do not explain the latent variable well. Table 3 shows that the average variance extracted from all latent variables is higher than 0.5, as proposed by Hair *et al.* (2019). The convergent validity is satisfactory, meaning all indicators are convergent and highly correlated to explain latent variables.

Table 3. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average variance extracted (AVE)
FA	0.861	0.865	0.891	0.506
FB	0.877	0.878	0.901	0.504
FK	0.878	0.879	0.911	0.673
FS	1.000	1.000	1.000	1.000
FSO	0.792	0.795	0.858	0.550

Source: Authors' calculation

Discriminant validity

The discriminant validity test is performed. Discriminant value is the degree to which factors are distinct from each other and uncorrelated. Discriminant validity could be tested through several methods, including the cross-loading and Fornell-Larcker coefficients. In this study, the heterotrait-monotrait (HTMT) coefficient of Henseler *et al.* (2014) is used. According to the criterion, the HTMT value should not be too high to avoid the problem of the latent variable being better explained by the other latent variable's component indicators than by its own. To ensure discriminant validity, the HTMT needs to be less than 0.85. All HTMT values are below 0.85, which meets the maximum threshold of this criterion.

Collinearity statistics

Multicollinearity is a phenomenon that occurs when latent variables are closely correlated. This may cause inaccuracies in interpreting the coefficients R-squared and the regression coefficients. To test the phenomenon of multicollinearity, the test of variance exaggeration factor VIF was performed. If VIF is greater than 2, there is a sign of multicollinearity; if VIF is greater than 10, it is definitely multicollinear; and if VIF is less than 2, the model does not have multicollinearity. The results show that the model has no multicollinearity because the exaggeration coefficients of variance of all latent variables are less than 2.

Coefficient of determination R-squared

R-squared shows the explanatory level of the independent variable for the dependent variable. This index reflects the independent variables' explanatory level to the model's dependent variable.

Table 4. Results of R-squared and R-squared adjusted

	R-squared	**R-squared adjusted**
FA	0.121	0.115
FB	0.220	0.211
FK	0.237	0.235
FS	0.203	0.192

Source: Authors' calculation

Path coefficients

Bootstrapping is a nonparametric approach to determine the statistical significance of PLS-SEM outcomes like path coefficients, Cronbach's Alpha, HTMT, and R-squared values. To ensure the stability of results, a large number of bootstrap subsamples (10,000) is used (Hair *et al.*, 2022).

Table 5. Path coefficients

	FA	**FB**	**FK**	**FS**	**FSO**
FA		0.048		-0.021	
FB				0.421	
FK	0.201	0.428		0.015	
FS					
FSO	0.203	0.045	0.487	0.074	

Source: Authors' calculation

Table 5 shows the results of the statistical significance testing. The path coefficient results of the bootstrap analysis were used to assess the impact relationships. Results reveal that financial behavior positively influences financial satisfaction, which is significant at 1% with a p-value of 0.000 and less than 0.01. Similarly, financial knowledge has a positive impact on financial attitude, financial knowledge has a positive impact on financial behavior, financial socialization has a positive impact on financial attitude, and financial socialization has a positive impact on financial knowledge. These relationships are significant at 1% as the p-value is less than 1%.

Results show that the model is a good fit, all Cronbach's Alpha of all latent variables meet requirements, the discriminant validity test is satisfied, and the model has no multicollinearity. Table 6 summarizes the results of hypothesis testing after data analysis.

Table 6. Summary of hypothesis testing

Hypothesis	P-value	Results
H1	0.004	Supported
H2	0.000	Supported
H3	0.946	Not supported
H4	0.000	Supported
H5	0.005	Supported
H6	0.428	Not supported
H7	0.285	Not supported
H8	0.567	Not supported
H9	0.871	Not supported
H10	0.000	Supported

Source: Authors' conclusion

According to the statistical results, financial knowledge does not directly have a positive impact on financial satisfaction (hypothesis H3). In other words, there is no evidence that the higher financial knowledge one has, the higher financial satisfaction one gains.

The mean value of financial attitude is very high, the highest among all the latent variables. It means that participants in this survey are highly aware of the importance of PFM. However, financial attitude does not have a significant statistical impact on either financial behavior or financial satisfaction (hypotheses H8 and H9). It may be explained by the argument that people all realize the importance of financial management, but they lack the discipline or constancy, or locus of control to follow positive financial management. Besides, personal characteristics like job and workplace may have some meaningful explanation. This is one question that could be investigated further.

Financial socialization does not significantly have an impact on financial behavior (hypothesis H6). It means that financial communications with parents, watching television, or reading newspaper have no direct influence on respondents' PFM behavior, whether to spend, save, invest, etc. According to these results, social forces do not directly impact a person's engagement in PFM practices. In the same way, financial socialization does not have a direct impact on financial satisfaction (hypothesis H7).

Financial knowledge positively affects financial attitude at 1% (hypothesis H1). It can be interpreted that the more people know about financial matters, the more they think positively about PFM practices or the more they favor engaging in PFM behaviors. This result is consistent with such studies as Susan and Djajadikerta (2017).

Financial socialization significantly positively affects financial attitude at 1% (hypothesis H5). In other words, financial socialization experiences are associated with financial attitude; the more one interacts or communicates with socialization agents about financial matters, the more positive financial attitude they will have. This result is supported by prior studies like Shim *et al.* (2010), Supinah *et al.* (2016).

Notably, there is a positive relationship between financial socialization and financial knowledge (hypothesis H4). Besides, financial knowledge also has a positive impact on financial behavior at 1% (hypothesis H2). There is also a positive relationship between PFM behavior and financial satisfaction (hypothesis H10). It is supported that the more people are financially socialized, the more knowledge they can gain; the more they gain, the more they are involved in recommended financial behavior, and the more they are contented with their financial status accordingly.

6. Research implications and recommendations

This study has contributed to the field of PFM research in various ways. The main finding of this study is the path relationship found and tested in the context of Vietnam. In particular, it is discovered that financial behaviors can predict financial satisfaction. Financial behaviors, in turn, can be predicted by financial knowledge, and financial knowledge can be enhanced by financial socialization. So, this paper points out this path relationship and proves it empirically.

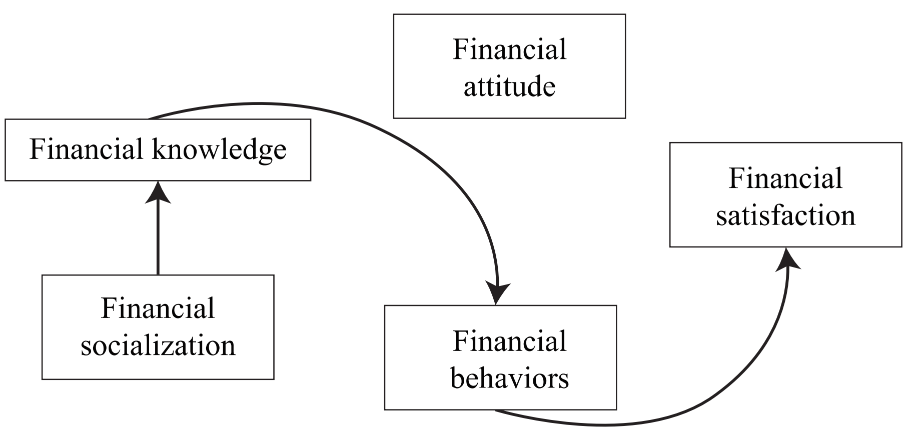

Figure 3. Path model

Source: Authors' conclusion

Firstly, this study's results support Godwin (1994) and Mugenda *et al.* (1990), who argue that individuals and households cannot successfully manage their finances if they are not well-equipped with financial knowledge. Hence, improving financial knowledge is an important way to improve financial capacity and quality of life. Individuals with better financial knowledge would make better PFM decisions, reflected in their ability to manage expenses, spending, personal investment, and insurance decisions. This finding has implications for individuals and households themselves. They need to self-equip and increase financial knowledge through different ways to be able to conduct desirable PFM behaviors and to achieve financial satisfaction. This study also has implications for financial education in Vietnam. Educational regulatory agencies and institutions should include personal finance education in formal education curricula or organize educational programs, seminars, and training for learners depending on their abilities and conditions. All citizens should be given early access to the PFM field.

Secondly, results reveal that PFM behavior has a positive influence on financial satisfaction. This finding has implications for individuals and households that PFM is a way to achieve their goal: financial satisfaction. When they are satisfied with their financial status, they can achieve a better quality of life. Marital and life satisfactions are also affected by financial satisfaction. This finding also has implications for government and government agencies. The government should have policies to encourage people to save and invest sensibly and protect individuals and households as consumers when they engage in the financial market. It is a way to boost the development of the whole economy and society.

Thirdly, financial socialization significantly has a positive impact on financial knowledge. Family, media, peers, and the workplace are typical financial socialization agents. Recent research on financial socialization has focused on family financial communications throughout the periods of childhood and teenager. This environment is the most common source of financial role transfer. However, financial socialization is a lifelong procedure that begins in childhood, continues through adulthood, and over the entire life cycle. Therefore, families, schools, workplaces, institutions, and policymakers should be aware of the importance of financial socialization. To achieve financial goals, appropriate financial socialization methods should be considered from the viewpoints of individuals, households, and society.

7. Conclusions

This paper studies financial socialization, financial knowledge, and financial attitude in their relationships with financial behaviors and financial satisfaction in PFM in Vietnam. Research results show that financial socialization directly impacts financial knowledge, which then increases positive financial behaviors and enhances financial satisfaction for individuals and households. These findings provide both scientific and practical contributions to the field of PFM in Vietnam. Theoretically, the research adds to the existing knowledge on PFM behaviors by evaluating the influence of various factors, including financial socialization, financial knowledge, and financial attitude, especially in the Vietnamese context. In terms of practice, research outcomes provide incentives for individuals and households to learn more about and engage more in PFM practices to achieve financial satisfaction. Enhancing national programs to raise awareness and knowledge of PFM among individuals and households is essential.

It is also expected that the implications will be useful for families, schools, educational and financial institutions, as well as government and governmental agencies.

Particularly, this research investigates financial socialization in association with PFM and financial satisfaction, a field in which little research has been done before in Vietnam. Vietnam has low financial literacy and low financial inclusion. The study provides evidence for adopting financial socialization as a potential way to deliver financial education and increase financial literacy in addition to formal financial courses. Providing financial knowledge and dealing with financial matters through this channel can be implemented on a large scale, reaching a wide range of participants. Moreover, financial knowledge may no longer always be academic but easy to understand and appealing to adopt. Individuals and households, parents and families, counselors, educators, and other experts, as well as financial education in Vietnam and public policymakers, can all benefit from the findings of this study.

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