

# Exploring Factors Affecting Young Adults' Financial Management Behavior: A Hybrid PLS-SEM and fsQCA Approach

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## Abstract

This study investigates the factors influencing financial management behaviors (FMB) among young adults in Poland, drawing on the Theory of Planned Behavior (TPB). Specifically, it examines the roles of financial attitude, family financial socialization, peer influence, financial self-efficacy, and subjective financial knowledge. Data were collected from 340 university students using convenience sampling. A hybrid analytical approach combining partial least squares structural equation modeling (PLS-SEM) and fuzzy-set qualitative comparative analysis (fsQCA) was employed. PLS-SEM results indicate that financial attitude, subjective financial knowledge, and financial self-efficacy are significantly associated with FMB. Contrary to expectations, family financial socialization had no significant effect, while peer influence was significant but negative effect. FsQCA revealed two distinct pathways leading to positive FMB, highlighting the importance of financial attitude and knowledge, even in the absence of strong peer or family support. The findings underscore the complexity of financial behavior and suggest that educational interventions should focus on improving financial attitudes and self-efficacy, while also acknowledging the important roles of family and peer influences. This study contributes novel insights into financial behavior research in Eastern Europe and demonstrates the value of combining SEM and fsQCA in behavioral finance studies.

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## Introduction

The study of financial management behaviors (FMB hereafter) has emerged as a critical research domain (Ahamed & Limbu, 2024; Deenanath et al., 2019; Goyal et al., 2023; She et al., 2024), particularly in an era characterized by economic volatility and heightened geopolitical tensions. The proliferation of credit

access, advancements in digital banking platforms, and diversification of investment vehicles has increasingly complicated the financial ecosystem, attracting significant attention from policymakers, financial institutions, and researchers. Young adults represent a pivotal cohort in this context, as they navigate the complexities of early career

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trajectories, debt management, and strategic long-term financial planning. This period of life encapsulates significant transitional milestones—such as labor market entry, engagement in higher education, and personal financial stewardship—all of which necessitate strong financial literacy and informed financial decision-making capabilities. Understanding FMB within this demographic is imperative, as financial practices established during this formative stage exert profound implications on their sustained financial solvency and overall economic well-being (Porto & Xiao, 2022; Rai et al., 2019; Sabri et al., 2023; She et al., 2024; Xiao & Porto, 2017).

Despite a number of reviews, meta-analyses, and empirical studies on FMB from regions like the United States, Western Europe, Northern Europe, and Southeast Asia, (Goyal et al., 2021; Kaur & Singh, 2024; Lučić et al., 2024; Rudi et al., 2020) a substantial research gap persists in Eastern European countries such as Poland, the Czech Republic, and Slovakia. This gap is particularly notable given the distinct cultural, social, and political dynamics that differentiate these nations (Cwynar, 2021). The shift from communist regimes to market economies, alongside extensive financial reforms, has significantly altered their economic landscapes. However, contemporary scholarship inadequately captures the evolving financial attitudes and behaviors shaped by this unique historical trajectory. This transition has profoundly impacted younger generations, many of whom lack the inherited financial knowledge or established financial culture. Moreover, financial literacy in Eastern Europe remains below that of Western Europe due to divergent post-WWII socio-economic developments. Young adults in the Eastern European region face challenges stemming from the lack of financial education during communism, the transition to a market economy, and the conflict between traditional values and modern economic demands. Psychological and sociocultural factors, such as tensions between collectivism and individualism and distrust of financial institutions, remain underexplored. Thus, further empirical research is crucial to understand emerging FMBs and attitudes in these contexts.

In FMB research, the Theory of Planned Behavior (TPB) (Ajzen, 1991) has been widely

used to predict financial intentions and actions by examining attitudes, subjective norms, and perceived behavioral control (Xiao & Wu, 2008). Positive financial attitudes, such as toward saving and budgeting, are consistently linked to better financial behavior (Castro-González et al., 2020; Perry & Morris, 2005). Subjective norms—social pressures from significant others—also strongly shape financial decisions (Georgiou et al., 2023). Both descriptive and injunctive norms influence behavior, often stemming from family socialization and peer influence (Bicchieri et al., 2018; Salmivaara et al., 2021). Parents model financial behavior, while peers contribute through social learning and normative pressure (Goyal et al., 2023; Gudmunson & Danes, 2011).

Financial self-efficacy, or belief in one's ability to manage finances, is positively linked to better financial practices and outcomes (Farrell et al., 2016; Lown, 2011). Similarly, subjective financial knowledge—confidence in financial understanding—enhances decision-making and positive financial behavior (Allgood & Walstad, 2016; Perry & Morris, 2005). Prior research (Morris et al., 2023) highlights that financial behavior is shaped by a network of factors, including past experiences and attitudes influenced by knowledge. These psychosocial elements interact and shouldn't be viewed in isolation. Yet, despite ample research, asymmetric analysis in this field remains underexplored (Algarni et al., 2024; Ahamed, 2024).

To address these gaps in FMB research, this study investigates key factors and their influence on Polish young adults' financial behavior, including how combinations of these factors lead to positive or negative outcomes, using a hybrid PLS-SEM and fsQCA approach (Chaouali et al., 2024; Pappas & Woodside, 2021). Employing both symmetric (net effects) and asymmetric (combinatory effects) modeling methodologies provides a more comprehensive and nuanced understanding of the antecedent factor patterns. Sole reliance on a single methodology might limit insights into complex phenomena (Gil-Cordero et al., 2024). Furthermore, complexity theory, which utilizes Boolean algebra and asymmetric thinking, enables the exploration of non-linear phenomena (Ragin, 2009). FsQCA integrates qualitative and quantitative outlooks,

addressing the limitations of variable-oriented analysis while offering the precision of case-oriented analysis (Mason et al., 2023). This approach allows for the examination of intricate conditions that predict outcomes, particularly concerning the FMB of young Polish adults. By applying a hybrid analytical technique, this study is among the few in the domain that advances theoretical understanding by combining granular findings into propositions. These propositions may contribute to further theory development and policy interventions, particularly within the Eastern European region.

This study seeks to provide a more nuanced understanding of the factors influencing FMB among young adults in Poland, an Eastern European country, with the potential to generalize findings to other nations in the region. The results will contribute to the broader literature on financial behavior and offer valuable insights for policymakers and financial educators, both regionally and globally. Specifically, the research addresses the following research questions:

1. What factors influence the desirable FMB of Polish young adults?
2. To what extent do these factors exert their influence on financial behavior outcomes?
3. What combinations of causal factors contribute to positive or negative financial behaviors among young adults in Poland?
4. What factors influence the desirable FMB of Polish young adults, to what extent do these factors exert their influence, and what combinations of causal factors may lead to positive or negative financial behaviors among young adults in Poland?

This study makes three precise contributions to the understanding of FMB among young adults. First, the research investigates the effects of money attitudes, social norms (family financial socialization and peer influence), and perceived behavioral control (subjective financial knowledge and financial self-efficacy) within the framework of the TPB. Second, the study employs a dual-method approach by combining PLS-SEM and fsQCA to identify both direct effects and combinations of causal factors influencing financial behavior. Third, the research focuses specifically on young adults in Eastern European countries, where research in this area is limited, providing novel insights into the factors shaping their financial management

practices. Overall, the study expands the research on young consumers' FMB and highlights the dynamic interplay of various influencing factors.

## Literature Review and Hypotheses Development

### *TPB as an Organizing Framework for FMB*

The Theory of Planned Behavior (TPB) is a well-established conceptual framework used to explain human behavior across various domains, including financial behavior (Ajzen, 1991; Yeo et al., 2024). TPB posits that behavior is primarily driven by three core factors: attitudes, subjective norms, and perceived behavioral control, which together shape behavioral intentions and subsequent actions (Ajzen, 1991; Armitage & Conner, 2001). This model provides a systematic structure for integrating diverse financial constructs, allowing researchers to organize complex influences into a cohesive framework (Magwegwea & Lim, 2020; Yeo et al., 2024).

First, attitudes within TPB capture an individual's overall evaluation of the behavior in question. In the context of financial management, this includes positive or negative evaluations of saving, budgeting, and investing (Shih et al., 2022). For instance, financial attitudes often reflect beliefs about the benefits of saving or the risks associated with financial planning, which have been shown to influence savings intentions (Magwegwea & Lim, 2020). Second, subjective norms refer to the perceived social pressure to engage or not engage in a particular behavior (Ajzen, 1991). In personal finance, this includes influences from family, peers, and mentors, often captured through concepts like financial socialization, where parents and peers shape attitudes, skills, and habits related to money (Yeo et al., 2024). This aligns well with TPB's emphasis on social influence, as these norms directly affect financial intentions by reinforcing or discouraging certain financial behaviors (Magwegwea & Lim, 2020). Third, perceived behavioral control encompasses both internal self-efficacy (confidence in one's ability to manage finances) and external constraints (such as financial resources and access to information) (Shih et al., 2022). This component is critical for financial decision-making, as a person's belief in their ability to effectively manage money directly impacts

their financial behaviors (Shih et al., 2022). For example, low financial self-efficacy or limited financial knowledge can significantly reduce one's perceived control over financial decisions, thereby reducing the likelihood of engaging in positive financial behaviors (Magwegwea & Lim, 2020).

Together, these three components form a coherent causal chain, linking attitudes, social influences, and perceived control to financial intentions and behaviors (Ajzen, 1991; Magwegwea & Lim, 2020). This structure not only clarifies the relationships between diverse financial factors but also makes it easier to compare findings across studies. Unlike standalone measures of financial attitudes or self-efficacy, TPB offers a unified framework that captures the complex, multi-dimensional nature of financial decision-making (Rutherford & DeVaney, 2009; Yeo et al., 2024). Overall, TPB provides a comprehensive lens for understanding financial behavior, integrating various psychological and social factors into a single, cohesive model. This integration enhances clarity, supports systematic analysis, and facilitates meaningful comparisons across different financial contexts, without dismissing earlier research (Magwegwea & Lim, 2020; Rutherford & DeVaney, 2009; Yeo et al., 2024).

### ***Financial Management Behavior (FMB)***

Financial behavior encompasses a wide range of activities such as saving, budgeting, investing, and spending (Morris et al., 2023; Rai et al., 2019; Xiao & Wu, 2008). Essentially, it involves the techniques individuals use to handle their income and financial situations (Saurabh & Nandan, 2018). Positive financial behavior is defined as actions that promote financial well-being and stability, such as budgeting for expenses, saving for both short and long terms, and preparing for emergencies (Saurabh & Nandan, 2018). In contrast, engaging in negative financial behaviors, such as excessive reliance on credit and loans, can undermine financial well-being (Rai et al., 2019). Research indicates that financial behavior is a significant determinant of financial satisfaction (Joo & Grable, 2004; Xiao & Porto, 2017). Understanding the factors associated with financial behavior is important for informing the design of interventions and educational programs aimed at supporting better financial outcomes. The TPB (Ajzen,

1991) provides a robust framework for examining the factors associated with financial behavior. According to TPB, three primary components—attitude, subjective norms, and perceived behavioral control—predict behavioral intentions and actual behavior. Past research also highlights that financial behaviors and decisions are influenced by external factors (such as culture, social class, and social groups) and internal factors (like self-esteem), which relate to an individual's self-motivation, learning, and personality (Morris et al., 2023). For example, Goyal et al. (2023) identified financial socialization, psychological traits, and financial literacy as key factors linked with personal financial management behavior among young Indians. This study seeks to explore the factors associated with financial behavior among Polish young adults using the TPB framework. By examining the effects of financial self-efficacy, financial attitude, family financial socialization, peer influence, and subjective financial knowledge, this study seeks to provide a comprehensive understanding of the factors that promote positive financial behavior.

### ***Financial Attitude and FMB***

Within the TPB, attitudes are central predictors of behavioral intentions, influencing the likelihood of performing specific actions (Ajzen, 1991). Financial attitude refers to an individual's positive or negative evaluation of financial practices such as saving, budgeting, investing, and spending (Castro-González et al., 2020). Positive financial attitudes, reflecting favorable evaluations of prudent financial management, increase the likelihood of engaging in responsible behaviors. Previous studies underscore the critical role of financial attitude in predicting financial behavior (Rai et al., 2019). For instance, Perry and Morris (2005) found that individuals with positive financial attitudes are more likely to save regularly and budget carefully. Similarly, Parrotta and Johnson (1998) observed that young adults with positive financial attitudes demonstrated better financial management practices, highlighting the direct impact of attitudes on behavior. Those with positive financial attitudes are more likely to prioritize long-term financial goals and recognize the benefits of responsible financial practices, such as saving and budgeting. Additionally, these attitudes contribute to emotional regulation,

reducing financial stress and fostering rational decision-making. In light of these insights, we propose the following hypothesis:

*H1: Financial attitude has a positive and significant effect on FMB.*

### ***Social Norm and FMB***

Norms represent the social pressure individuals experience to perform specific behaviors based on the beliefs and expectations of significant others (Ajzen, 1991). Social circles, including family, friends, colleagues, and acquaintances, exert considerable influence on an individual's financial decisions, often subconsciously (Georgiou et al., 2023). Social norms refer to the collective expectations and rules within a group regarding appropriate behavior (Bicchieri et al., 2018). These norms are frequently conveyed through social support networks that offer guidance, advice, and encouragement in fostering sound financial practices. A supportive network can facilitate adherence to financial goals and help when challenges arise. Social norms can be categorized into two key subdimensions. First, descriptive norms refer to perceptions of what most individuals do in a particular context (Salmivaara et al., 2021). When individuals perceive that their peers are engaging in positive financial behaviors, such as saving, budgeting, or investing, they are more likely to adopt these behaviors themselves. Observing others' successful financial management creates expectations and motivates similar actions. Second, injunctive norms reflect perceptions of which behaviors are socially approved or disapproved (Salmivaara et al., 2021). When responsible financial behaviors are seen as valued and endorsed by significant others—such as family, friends, or the broader community—individuals may experience social pressure to conform. Positive reinforcement from important others can further motivate the continuation of good financial habits. In this study, social norms are divided into two categories: family financial socialization and peer influence.

### ***Family Financial Socialization and FMB***

Family financial socialization is the process through which individuals acquire financial knowledge, skills, attitudes, and behaviors from family interactions (Goyal et al., 2023). This involves direct instruction, observational learning, and discussions about financial

matters within the family (Legenzova & Lecké, 2024). Early exposure to financial practices, particularly through parents as role models, can have a lasting influence on financial behaviors. Children often emulate their parents' practices, such as saving, budgeting, and prudent decision-making. In addition to modeling, families communicate explicitly about financial matters, providing guidance on financial planning, budgeting, and saving. This socialization shapes financial attitudes and beliefs aligned with family values, promoting responsible financial behavior, such as prioritizing saving and avoiding debt.

Research consistently supports the positive impact of family financial socialization on financial behavior. For example, Shim et al. (2010) found that when parents actively discuss financial matters and model responsible financial practices, young adults exhibit improved financial behaviors. Similarly, Jorgensen and Savla (2010) identified parental influence as a significant determinant of financial attitudes and behaviors among college students. Gudmunson and Danes (2011) further highlighted that effective family financial socialization enhances financial self-efficacy and confidence, both of which are crucial predictors of responsible financial behavior.

In the context of Eastern Europe, it is suggested that families play an especially strong role in shaping the financial attitudes and behaviors of their children. Based on these findings, we propose the following hypothesis: family financial socialization has a positive and significant effect on financial behavior. This relationship is reinforced through mechanisms such as modeling, communication, reinforcement of social norms, and the transmission of financial knowledge and skills.

*H2: Family financial socialization has a positive and significant effect on FMB*

### ***Peer influence and FMB***

Peer influence significantly impacts the attitudes, beliefs, and behaviors of individuals within the same social or age group, particularly during young adulthood when financial independence is being established. Peers, including friends and colleagues, shape financial behaviors such as saving, spending, and investing (Godase et al., 2023) through social learning and norm-setting. Observing

peers who engage in responsible financial practices encourages similar behaviors, while positive peer pressure motivates adherence to sound financial management. In addition to norm-setting, peers often share critical financial information, including budgeting techniques, savings recommendations, and strategies for avoiding financial risks. Access to this shared knowledge enhances financial literacy and improves decision-making competencies. Furthermore, peers provide emotional support, which can be vital in navigating financial challenges and decision-making processes. Within the framework of the TPB, subjective norms—beliefs about what others expect one to do—play a key role in shaping intentions and behaviors. Peer influence, therefore, significantly contributes to the formation of these subjective norms, particularly in the financial behaviors of young adults.

Extant research consistently highlights the positive role of peer interactions in promoting desirable financial behaviors. For example, Gudmunson et al. (2016) demonstrated that peer discussions on financial topics can enhance financial literacy and foster responsible financial conduct. Similarly, Hira et al. (2013) found that peer influence is a key determinant of financial practices such as budgeting, investing, and credit management, underscoring the extensive influence of social interactions on financial decision-making. Therefore, we hypothesize that peer influence has a positive and significant effect on financial behavior among young adults. This relationship is supported by mechanisms such as social learning, normative influence, information sharing, emotional support, and comparative evaluation.

*H3: Peer influence has a positive and significant effect on FMB.*

### ***Perceived Behavioral Control and FMB***

In the TPB, perceived behavioral control (PBC) is a key concept that reflects an individual's perception of how easy or difficult it is to perform a particular behavior (Ajzen, 1991; Conner and Armitage, 1998). This perception is based on control beliefs, which are factors that can either facilitate or hinder the performance of the behavior (Conner & Armitage, 1998). Control beliefs are divided into two categories: self-efficacy (internal control) and perceived controllability (external control) (Ajzen, 1991).

The concept of perceived behavioral control in the TPB, is consistent with Bandura's concept of "perceived self-efficacy" (Georgiou et al., 2023). In this research, we used two categories for perceived behavioral control, derived from past studies: subjective financial knowledge and financial self-efficacy. These categories provide a comprehensive understanding of perceived behavioral control within the context of financial decision-making, as discussed below.

### ***Subjective Financial Knowledge and FMB***

Subjective financial knowledge refers to an individual's self-perceived understanding and competence in financial matters. Unlike objective financial knowledge, which pertains to verifiable knowledge of financial concepts and practices, subjective financial knowledge is based on personal perceptions and confidence in one's financial capabilities. This distinction is pivotal, as it highlights the significant role of self-perception in influencing financial decision-making and behavior. Subjective financial knowledge is closely associated with financial self-efficacy, or the belief in one's ability to effectively manage financial tasks. Individuals who perceive themselves as financially competent tend to exhibit greater confidence in their financial decisions, which often leads to more favorable financial outcomes. Individuals who believe they possess sufficient financial knowledge are more inclined to engage in prudent financial behaviors, such as consistent saving, strategic investing, and careful budgeting. Higher perceived financial knowledge reduces financial anxiety (Ahamed & Limbu, 2024), fosters proactive management, and enhances motivation to engage in financial planning. It also improves risk assessment, enabling more cautious financial behavior. Subjective financial knowledge influences financial intentions by increasing confidence in one's ability to execute financial plans, aligning with perceived behavioral control in the TPB.

Past research underscores the strong relationship between subjective financial knowledge and positive financial behaviors, such as budgeting, saving, and investing (Morris et al., 2023). Allgood and Walstad (2016) found that individuals with elevated levels of subjective financial knowledge are significantly more likely to engage in beneficial financial behaviors. Similarly, Perry and Morris

(2005) demonstrated that subjective financial knowledge is a key predictor of financial behavior, even after controlling for objective financial knowledge. In light of these findings, we hypothesize that subjective financial knowledge exerts a positive and significant effect on financial behavior. This relationship is mediated through mechanisms such as enhanced confidence and self-efficacy, superior decision-making, increased motivation and engagement, improved risk perception and management, and strengthened behavioral intentions.

*H4: Subjective financial knowledge has a positive and significant effect on FMB.*

### **Financial Self-efficacy and FMB**

Financial self-efficacy, based on Bandura's self-efficacy theory, refers to an individual's confidence in their ability to manage financial tasks and make informed decisions (Farrell et al., 2016; Lown, 2011). Bandura's framework asserts that belief in one's capabilities significantly influences their success in performing actions (Bandura, 1977). Individuals with high self-efficacy are more likely to set ambitious goals, persist through challenges, and recover from setbacks (Bandura, 1997).

In financial contexts, this belief shapes how individuals handle financial challenges and opportunities, impacting both their intentions and behaviors. Higher financial self-efficacy strengthens perceived behavioral control, a key element of the TPB, encouraging positive behaviors like budgeting and saving. Greater confidence leads individuals to engage in better financial management (Lone & Bhat, 2024), and those with higher self-efficacy are more motivated to overcome financial difficulties (Dare et al., 2023). Research supports the link between financial self-efficacy and well-being. Farrell et al. (2016) found that higher financial self-efficacy reduces financial stress and enhances well-being, while other studies show it prevents poor financial behaviors (Hadar et al., 2013) and promotes prudent habits like saving (Lown, 2011). Robb and Woodyard (2011) identified it as a key predictor of financial satisfaction and effective management. Therefore, we conceptualize that financial self-efficacy plays a pivotal role in shaping financial behavior by enhancing perceived behavioral control and fostering

positive financial practices. Individuals who believe in their ability to manage finances are more likely to adopt behaviors conducive to financial well-being. Consequently, we propose the following hypothesis:

*H5: Financial self-efficacy has a positive and significant effect on FMB.*

## **Methodology**

### **Participants and Sample Design**

We employed a homogeneous convenience sampling technique, to specifically target university students in Poland under the age of 29. This approach aimed to minimize sociodemographic variability, thereby enhancing the generalizability of the sample and reducing potential sampling bias (Mason et al., 2023). An online survey questionnaire was distributed among business and management students across three universities in Poland, located in the capital, the northeastern region, and the west-central region. The survey was conducted between May and July 2024.

### **Measures**

To measure FMB, we adapted 15 items from Jorgensen (2007), rated on a 5-point Likert scale ranging from 1 (not at all true for me) to 5 (very true for me). Financial attitude was assessed using 15 perceptual items from Jorgensen's "College Students Financial Survey" (2007), also rated on a 5-point Likert scale. Financial self-efficacy was measured with six items from Farrell et al. (2016), using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Family financial socialization was evaluated using a five-item scale adapted from Zhao and Zhang (2020), rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Peer influence was assessed using a self-developed questionnaire covering various aspects of personal finance, including saving habits, investment decisions, spending behaviors, borrowing and lending practices, and attitudes toward financial planning. Each of the six items was rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). To measure subjective financial knowledge, we developed eight questions based on a review of the financial literacy literature (Deenanath et al., 2019). These questions assessed perceptions across budgeting, investing, loans and debt management, financial security, financial communication, risk

management, interest rates, and insurance, using a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The detailed measurement items can be found in Appendix 1.

## Analysis and Results

### Sample Profile

After excluding incomplete responses and addressing missing data, the final usable sample comprised 340 responses, with a median age of 22 years. The sample profile consisted of 340 respondents, with a median age of 22 years. As the table-1 below indicates, the majority of participants were female (64.7%), followed by male (34.7%), and a small proportion who

preferred not to disclose their gender (0.6%). In terms of academic standing, the sample included first-year (27.9%), second-year (22.6%), third-year (21.2%), and postgraduate students (28.2%). Most respondents were single or in a relationship (96.8%), while a small percentage were married (2.9%) or identified as "other" (0.3%). Regarding work experience, 17.4% had no prior experience, 31.5% had less than two years, 25.9% had two to less than four years, 15.6% had four to less than six years, and 9.7% had six years or more. Housing arrangements varied, with 4.4% living on campus, 47.4% in off-campus rental housing, 14.1% in their own off-campus residence, 30.6% living with parents or relatives, and 3.5% in other types of arrangements.

**Table 1. Sample Profile (N =340)**

	Frequency	%		Frequency	%
Gender			Academic standing		
Male	118	34.70	First year	95	27.90
Female	220	64.70	Second year	77	22.60
Prefer not to disclose	2	0.60	Third year	72	21.20
			Post graduate	96	28.20
Median age	22 Years		Marital status		
			Never been married / Single / in a relationship	329	96.80
			Married	10	2.90
			Other	1	0.30
Working experience			Housing arrangement		
None	59	17.40	On-campus	15	4.40
Less than 2 years	107	31.50	Off-campus rent	161	47.40
Two to less than 4 years	88	25.90	Off-campus own	48	14.10
Four to less than 6 years	53	15.60	Live with parents / relatives	104	30.60
Six years or more	33	9.70	Other	12	3.50



Researchers typically employ suitable methods for confirmatory and exploratory analysis (Chanda et al., 2023). In this study, we utilized a combined approach of PLS-SEM and fsQCA to verify the theoretical model (Chanda et al., 2023; Rasoolimanesh et al., 2021). PLS-SEM highlights general tendencies, while fsQCA uncovers multiple realities in achieving desirable FMB. Following configuration theory, fsQCA examines complex, non-linear interplays between elements. This study selected fsQCA along with PLS-SEM because it employs a fuzzy (continuous) scale for variables rather than a binary one, contributing novel insights to this research stream (Chanda et al., 2023; Rasoolimanesh et al., 2021).

### Assessment of the Model Using PLS-SEM

#### *Assessment of the Measurement Model*

To evaluate the reliability and validity of the measurement model, we employed SmartPLS (version 4.1.0.2), following established practices (Chanda et al., 2023; Chaouali et al., 2024). The analysis demonstrated satisfactory internal consistency and reliability, as indicated by Cronbach's alpha and composite reliability, as well as adequate indicator reliability (outer loadings), convergent validity (AVE), and

discriminant validity (HTMT and Fornell-Larcker criterion) for most latent constructs (Hair Jr et al., 2014). While Cronbach's alpha for financial attitude (0.64) and AVEs for financial behavior and financial self-efficacy fell slightly below the conventional thresholds of 0.70 and 0.50, respectively, prior research supports the acceptability of Cronbach's alpha values above 0.60 in social science contexts (Lam, 2012; Shi et al., 2012). Composite reliability ranged from 0.66 to 0.87, surpassing the minimum acceptable level of 0.60 (Fornell & Larcker, 1981; Lam, 2012). Thus, composite reliability alone can ensure sufficient convergent validity, even when more than 50% of the variance stems from error (Fornell & Larcker, 1981), confirming acceptable internal reliability (Lam, 2012). To address common method bias, a common issue in survey research, two strategies were applied. Harman's single-factor test revealed that no single factor accounted for more than 50% of the variance (Podsakoff et al., 2003). The construct reliability and validity statistics are depicted in table 2, 3 and 4. Additionally, VIF collinearity values for the factors were within acceptable limits, indicating that common method bias was not a concern.

**Table 2. Construct Reliability and Validity**

Construct name	Cronbach's alpha	Composite reliability		Average variance extracted (AVE)
		rho_a	rho_c	
FMB	0.71	0.72	0.81	0.46
Financial attitude	0.64	0.66	0.81	0.59
Family financial socialization	0.71	0.76	0.82	0.53
Peer influence	0.82	0.86	0.87	0.52
Subjective financial knowledge	0.87	0.88	0.90	0.52
Financial self-efficacy	0.78	0.80	0.84	0.48

To establish discriminant validity, this study used the HTMT ratio, a method recommended in the literature (Chanda et al., 2023; Rasoolimanesh et al., 2021). For discriminant

validity to be confirmed, each construct's HTMT value should be below 0.90. As shown in Table 3, all HTMT values meet this criterion.

**Table 3. Discriminant Validity (Heterotrait-monotrait ratio - HTMT)**

Construct name	1	2	3	4	5	6
FMB (1)						
Financial self-efficacy (2)	0.49					
Financial attitude (3)	0.84	0.63				
Family financial socialization (4)	0.17	0.11	0.20			
Peer influence (5)	0.23	0.19	0.23	0.32		
Subjective financial knowledge (6)	0.60	0.28	0.50	0.13	0.12	

Discriminant validity was further assessed using the Fornell-Larcker criterion, which requires the square root of each construct's AVE to exceed its correlations with other constructs (Fornell & Larcker, 1981). As displayed in

Table 4, this criterion was satisfied for all constructs, confirming that each construct shares more variance with its own indicators than with other constructs.

**Table 4. Discriminant Validity (Fornell-Larcker criterion)**

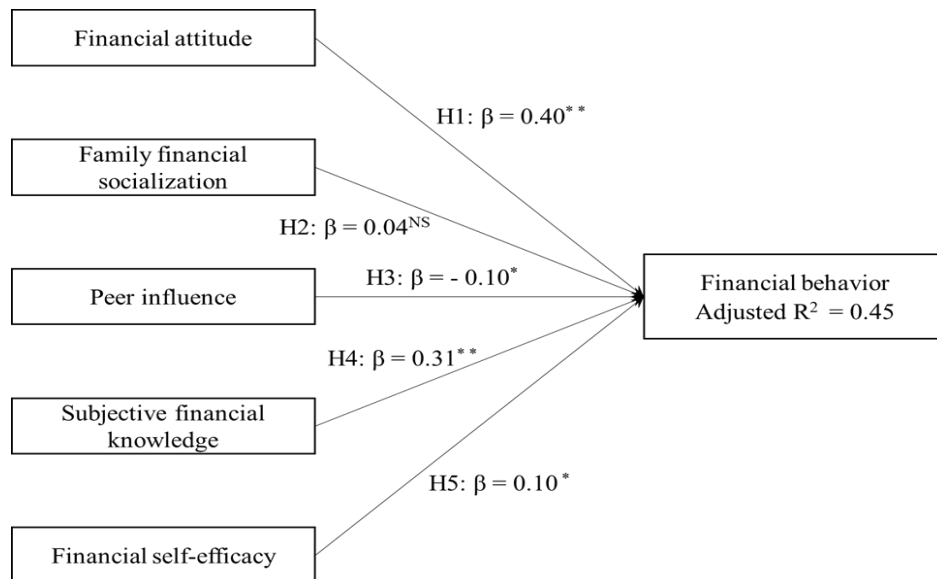
Construct name	1	2	3	4	5	6
FMB (1)	0.68					
Financial self-efficacy (2)	0.39	0.69				
Financial attitude (3)	0.59	0.47	0.77			
Family financial socialization (4)	0.13	0.06	0.11	0.73		
Peer influence (5)	-0.20	-0.16	-0.18	-0.21	0.72	
Subjective financial knowledge (6)	0.49	0.25	0.39	0.04	-0.01	0.72

#### ***Assessment of the Structural Model in PLS-SEM***

To evaluate the model, we analyzed the variance explained and path coefficients of the

endogenous variables using the adjusted  $R^2$  (Gil-Cordero et al., 2024).

**Figure 1. The Conceptual Model with Beta Coefficients and the Level of Significance (source: figure by authors)**



The adjusted  $R^2$  for FMB is 0.45 (Figure 1), indicating a good model fit. This suggests that the model explains nearly 50% of the variance in FMB, which is a strong result for a parsimonious model (Chanda et al., 2023; Gil-Cordero et al., 2024). As shown in Table 5, the path coefficients were tested using bootstrapping with 5000 samples (Hair Jr et al., 2014). Financial attitude significantly associated with desirable FMB ( $\beta = 0.40$ ,  $p > 0.05$ ), supporting hypothesis H1. However, family financial socialization had no significant effect on FMB ( $\beta = 0.04$ ,  $p < 0.05$ ), leading to

the rejection of H2. Interestingly, peer influence exhibited a significant but negative impact on FMB ( $\beta = -0.10$ ,  $p > 0.05$ ), contrary to H3. Both hypotheses related to perceived behavioral control were supported: subjective financial knowledge ( $\beta = 0.31$ ,  $p < 0.05$ ) and financial self-efficacy ( $\beta = 0.10$ ,  $p < 0.05$ ) had positive and significant effects on FMB, supporting H4 and H5. The findings reveal two unexpected results: the lack of effect from family financial socialization and the negative impact of peer influence on FMB. These results highlight the unique socio-economic context of Eastern Europe and prompted further exploration through QCA analysis, as discussed in subsequent sections.

**Table 5. Path Coefficients and P-values for Hypothesized Relationships**

Relationships	Path coefficient ( $\beta$ )	P values
Financial attitude -> FMB (H1)	0.40	0.00
Family financial socialization -> FMB (H2)	0.04	0.31
Peer influence -> FMB (H3)	-0.10	0.02
Subjective financial knowledge -> FMB (H4)	0.31	0.00
Financial self-efficacy -> FMB (H5)	0.10	0.05

### **PLSPredict**

The PLSPredict method, following the 10-fold approach (Shmueli et al., 2019), evaluates predictive relevance by generating case-level

predictions at both the item and construct levels. As a holdout sample-based technique, Shmueli et al. (2019) suggest that a structural model exhibits strong predictive power when the differences in RMSE between PLS and linear

models (LM) are minimal. If the RMSE values for all PLS items surpass those of the LM, the model demonstrates high predictive error and lacks predictive power. Conversely, if most LM RMSE values exceed those of the PLS, the model has moderate predictive power and error. A model demonstrates high predictive accuracy

when only a minority of PLS RMSE values are lower than those of LM. In this study, as shown in Table 6, the RMSE values for most PLS items were higher than those for LM items, indicating low predictive power for the model (Chanda et al., 2023).

**Table 6. Results of Predictive Power Assessment using PLSpredict**

Items of FMB	Q <sup>2</sup> _predict	RMSE	
		PLS	LM
I budget and track spending	0.26	1.02	1.03
I read to increase my financial knowledge	0.24	1.16	1.16
I contribute to an investment account	0.22	1.34	1.36
I contribute to a savings account regularly	0.15	1.49	1.53
I find legal ways to lower my taxes	0.06	1.39	1.41

Source: (Rasoolimanesh et al., 2021)

### ***FsQCA Analysis***

We acknowledge that our sample is cross-sectional and relatively small, but it meets the criteria for conducting PLS-SEM (Partial Least Squares Structural Equation Modeling). To address the deemed limitations associated with a smaller sample size, this study also employs fuzzy-set Qualitative Comparative Analysis (fsQCA) using version 3.0, an increasingly popular asymmetric method for understanding the complex interdependencies among the antecedents of young adults' financial management behavior (Gil-Cordero et al., 2024). Combining PLS-SEM and fsQCA is advantageous because these approaches offer distinct but complementary insights into the data.

PLS-SEM is a variance-based method that estimates the average influence and significance (net effects) of each predictor on an outcome, making it well-suited for smaller samples and complex models without strict distributional assumptions (De Andrés-Sánchez & Puchades, 2023). In contrast, fsQCA is a set-theoretic, case-oriented approach (treats the responses as 'cases') that focuses on identifying the specific combinations (or "recipes") of conditions that are sufficient (and sometimes necessary) for the observed outcomes (Ahamed et al., 2024; Chanda et al., 2023; Fainshmidt et al., 2020; Ragin, 2009; Rasoolimanesh et al., 2021). While PLS-SEM quantifies the strength and

direction of each path within a structural model, fsQCA captures complex causal relationships by identifying configurations of factors that together produce a given outcome, even when individual factors alone might have weak or inconsistent effects (Ragin, 2008, 2009; De Andrés-Sánchez & Puchades, 2023). A key advantage of fsQCA is its ability to account for conjunctural causation and equifinality, meaning that multiple, non-exclusive combinations of conditions can lead to the same outcome (Ragin, 2008). This approach recognizes that the same factor may have different effects depending on the context or combination in which it appears, capturing causal asymmetry more effectively than traditional symmetric models like PLS-SEM (De Andrés-Sánchez & Puchades, 2023).

Both methods are particularly suitable for studies with smaller cross-sectional samples, which are common in behavioral research. PLS-SEM, for instance, is known for its flexibility with small sample sizes and does not require normally distributed data (De Andrés-Sánchez & Puchades, 2023). It also relies on bootstrapping for significance testing, making it effective for studies with limited N (Hair et al., 2019). Similarly, fsQCA, originally developed for medium-sized samples (10–50 cases/responses), is not constrained by the large-N assumptions of conventional regression analysis, making it a powerful tool for analyzing smaller data sets (Ahamed, 2024; Chanda et al.,

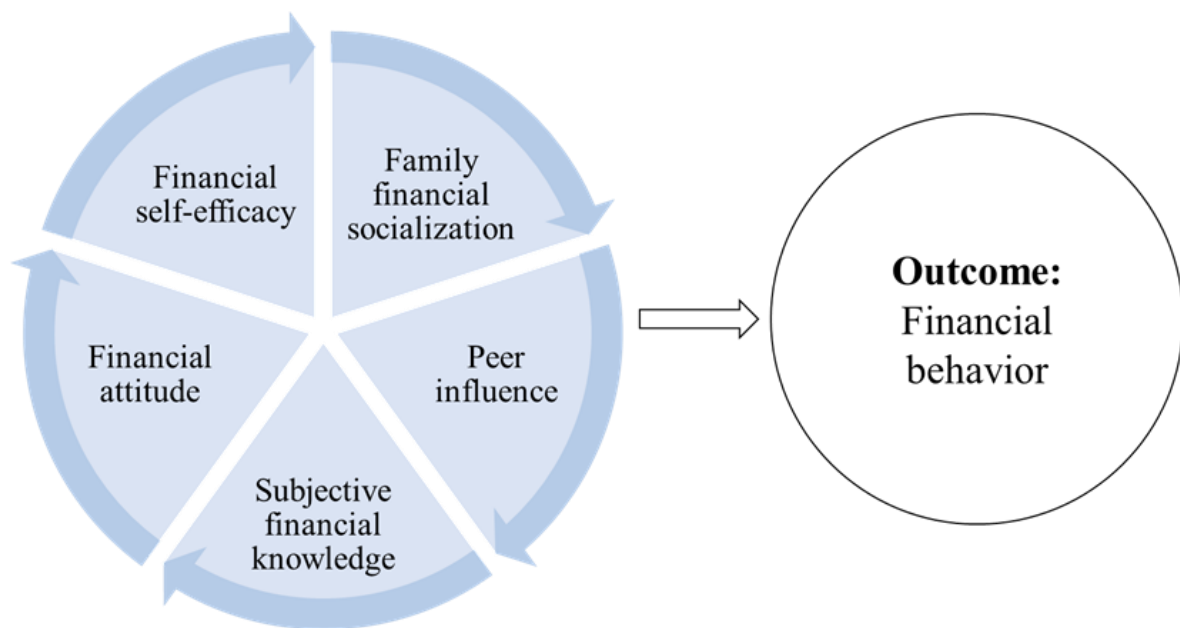
2023; Fainshmidt et al., 2020; Ragin, 2009). Recent studies confirm that fsQCA can still yield robust results even with small samples, as it assesses subset relations rather than relying on probability distributions (De Andrés-Sánchez & Puchades, 2023; Fainshmidt et al., 2020).

Regarding causal inference, fsQCA provides a unique advantage by evaluating necessity and sufficiency relationships within the data. It examines the associations between conditions (or combinations) that are always present when the outcome occurs (necessary conditions) or that consistently lead to the outcome (sufficient conditions) (Ragin, 2008, 2009). Unlike regression-based approaches, fsQCA does not rely on p-values but instead assesses consistency and coverage scores to determine the strength of these causal links (Vis & Dul, 2018). For example, if financial literacy and

self-control consistently co-occur with positive financial management behavior, this combination would be considered a sufficient configuration, supporting a causal interpretation under the assumption of causal complexity.

In summary, integrating PLS-SEM and fsQCA in a single study provides a more comprehensive analysis by capturing both the net effects of individual predictors (via PLS-SEM) and the complex, context-dependent causal pathways that drive the outcome (via fsQCA). This hybrid approach is particularly valuable in studies with small, cross-sectional samples where multiple, interacting factors influence the observed behaviors (Gil-Cordero et al., 2024; Ragin, 2009), acknowledging that different combinations of antecedents can lead to the same outcome. The conceptual QCA model is depicted in figure-2.

**Figure 2. The Conceptual QCA Model**



### **Calibration**

The first step in fsQCA analysis is calibration, which assigns fuzzy set values to each data point, ranging from 0 (full non-membership) to 1 (full membership) (Mason et al., 2023; Ragin, 2009). This study uses the direct calibration method (Ragin, 2008). Latent variable scores from the PLS-SEM software are used, with the 95%, 50%, and 5% percentiles selected as anchors to distinguish membership degrees (Ragin, 2008). Finally, the original data are

calibrated using the "calibration" function in the fsQCA software.

### **Necessary Condition Analysis**

After calibration, the next step is identifying necessary conditions before configurational analysis, assessing if each condition consistently aligns with the outcome (Ragin, 2009; Mason et al., 2023). Necessary condition analysis (NCA) examines whether a single condition can predict high membership in the outcome (Chanda et al., 2023; Rasoolimanesh

et al., 2021). A condition is considered necessary if it must be present for the outcome, with a consistency score above 0.9 (Chanda et al., 2023). In this study, FMB is the outcome.

Table 7 shows no single antecedent sufficiently predicts this behavior, consistent with complexity theory (Ragin, 2009; Ahamed, 2024).

**Table 7. Analysis of the Necessary Conditions**

Condition	Outcome			
	High FMB (positive)		(~) Low/medium FMB	
	Consistency	Coverage	Consistency	Coverage
Financial attitude	0.82	0.76	0.56	0.55
~ Financial attitude	0.51	0.52	0.76	0.82
Family financial socialization	0.68	0.68	0.60	0.63
~ Family financial socialization	0.63	0.60	0.70	0.70
Peer influence	0.60	0.60	0.67	0.72
~ Peer influence	0.72	0.67	0.63	0.63
Subjective financial knowledge	0.78	0.75	0.56	0.57
~ Subjective financial knowledge	0.55	0.54	0.75	0.79
Financial self-efficacy	0.57	0.56	0.71	0.75
~ Financial self-efficacy	0.75	0.71	0.59	0.59

*Note: ~ indicates the absence of a condition.*

#### 4.3.3 Sufficiency analysis

The final step is a sufficiency analysis using a truth table to identify causal combinations for the presence or absence of desirable FMB. FsQCA accounts for asymmetrical causal relationships, where explanations for the presence may differ from those for the absence (Chanda et al., 2023; Rasoolimanesh et al., 2021). Both outcomes were analyzed with a minimum frequency of six and a consistency threshold of 0.90, following large sample standards (Mason et al., 2023; Pappas and Woodside, 2021). Standard analysis and default settings were used for the intermediate solution's counterfactual analysis.

Table 8 presents the intermediate solution from the fsQCA, identifying configurations that are sufficient for achieving either high (desirable) or low/medium (undesirable) financial management behavior (FMB). Black circles (●) indicate the presence of a condition, "X" circles

indicate its absence, and blank cells represent "don't care" conditions, meaning the factor is not critical for the specific outcome (Fiss, 2011; Pappas & Woodside, 2021). Large circles denote core conditions, which consistently appear in both parsimonious and intermediate solutions, while small circles indicate peripheral conditions, which play a more context-dependent role (Fiss, 2011). Key metrics include consistency, which measures the reliability of each configuration in predicting the outcome, raw coverage, indicating the proportion of cases explained by each configuration, and unique coverage, reflecting the distinct contribution of a particular configuration without overlap (Ragin, 2008). These metrics provide a detailed view of how various conditions interact to produce complex financial behaviors, capturing both central and context-specific factors.

**Table 8. Results of the Intermediate Solution (Algorithm used Quine-McCluskey)**

Conditions	Outcomes			
	High (positive /desirable) FMB		(∼) Low/medium (negative /undesirable) FMB	
	1A	1B	2A	2B
Financial attitude	●	●	⊗	⊗
Family financial socialization		●		⊗
Peer influence	⊗			●
Subjective financial knowledge	●	●	⊗	
Financial self-efficacy	⊗	●	●	●
Consistency (CC)	0.91	0.90	0.93	0.92
Raw coverage (RC)	0.50	0.34	0.53	0.41
Unique coverage (UC)	0.22	0.07	0.17	0.05
Solution coverage	0.57		0.58	
Solution consistency	0.90		0.91	
Consistency cutoff	0.90		0.91	

*Note: Table notation source: Fiss, 2011; Pappas and Woodside, 2021.*

As shown in Table 8, the analysis identified two causal combinations for high (positive/desirable) FMB:

*Proposition 1A: A high (positive) financial attitude combined with high (self-perceived) subjective financial knowledge, even with low peer influence and low financial self-efficacy, can lead to desirable FMB.*

A strong financial attitude, combined with high subjective financial knowledge, can drive desirable FMB, even with low peer influence and financial self-efficacy. Individuals with positive financial attitudes view financial management as essential, which, alongside perceived financial competence, boosts proactive decision-making (Talwar et al., 2021). Low peer influence encourages autonomy, reducing negative FMBs (Zulfaris et al., 2020), despite low self-efficacy, intrinsic motivation (Di Domenico et al., 2022) and belief in financial knowledge guide the desired

financial behavior (Kuhnen and Melzer, 2018; Weinstein and Stone, 2018). Furthermore, individuals seek consistency between beliefs and actions, leading to optimistic, proactive behaviors. Self-directed learning compensates for low self-efficacy, reinforcing positive attitudes and financial knowledge over time. In post-communist societies like Poland, where formal financial education has been limited, subjective financial knowledge is crucial for decision-making. Many young adults rely on self-perceived knowledge from other sources or self-learning to compensate for the lack of formal education. Positive financial attitudes, rooted in personal values of responsibility, motivate effective saving and budgeting. Peer influence is less significant in a culture valuing independence, and strong attitudes and perceived competence may outweigh low self-efficacy.

*Proposition 1B: A high (positive) financial attitude, along with high family financial socialization, high (self-perceived)*

*subjective financial knowledge, and high financial self-efficacy, can result in desirable FMB.*

The combination of a positive financial attitude, strong family financial socialization, high subjective financial knowledge, and elevated financial self-efficacy forms a comprehensive framework that significantly enhances desirable FMB. A positive financial attitude drives alignment with long-term financial goals (Talwar et al., 2021), while family financial socialization instills sound practices from an early age (Ahamed and Limbu, 2024). High subjective financial knowledge boosts confidence in decision-making, and financial self-efficacy reinforces belief in one's ability to manage finances effectively (Lind et al., 2020). Together, these elements promote informed decision-making, autonomy, and responsible FMB.

This proposition extends the PLS results (Table 5) and aligns with existing research, emphasizing that family financial socialization is an important predictor of FMB (Ahamed and Limbu, 2024) and it is most effective when combined with financial attitude, knowledge, and self-efficacy. In the Polish context, where intergenerational transmission of financial habits is strong, family financial socialization is expected to play a vital role, particularly in post-communist settings with limited formal financial education. Here, high subjective financial knowledge compensates for educational gaps, while financial self-efficacy is critical in navigating economic pressures, such as rising costs and housing challenges.

The analysis also identified two combinations for low/medium (negative/undesirable) FMB:

*Proposition 2A: An unfavorable financial attitude and low (self-perceived) subjective financial knowledge, despite high financial self-efficacy, could still lead to self-reported undesirable FMB.*

An unfavorable financial attitude and low self-perceived financial knowledge can lead to maladaptive FMBs (Lim et al., 2018), even when financial self-efficacy is high (Park et al., 2024). Negative financial attitudes undermine motivation for prudent practices like saving and budgeting, while low perceived knowledge causes poor decision-making despite confidence in one's abilities. This misalignment fosters risky FMBs, with psychological factors

like cognitive dissonance further exacerbating poor outcomes. Thus, high self-efficacy alone cannot prevent undesirable FMB without positive attitudes and adequate perceived knowledge.

In Poland, where objective financial literacy is low, cultural conservatism and historical economic instability have shaped risk-averse financial attitudes. Many individuals lack confidence in their financial knowledge, leading to inadequate savings and aversion to investment (Cywar, 2020). Limited financial education perpetuates this issue, with even those possessing high self-efficacy unable to engage in optimal FMB without positive attitudes and sufficient knowledge (Aboagye and Jung, 2018). Research shows young adults with negative financial attitudes tend to neglect long-term planning and saving, critical in volatile economies (Kaiser et al., 2020). Low subjective knowledge further compounds this, as many young Poles, perceiving themselves as financially uninformed, engage in risky behaviors such as overspending and poor budgeting (Bień and Gębski, 2024). Consequently, financial self-efficacy, when unaccompanied by positive attitudes and sufficient perceived knowledge, does not facilitate sound FMB. The Polish cultural paradigm, which places significant emphasis on resilience and self-reliance, especially in light of the country's economic history, may foster financial self-efficacy but simultaneously lead to overconfidence and increased risk-taking without comprehensive understanding of the consequences.

*Proposition 2B: A low financial attitude and low family financial socialization can still lead to self-reported undesirable FMB, even with high peer influence and financial self-efficacy.*

Despite strong peer influence and high financial self-efficacy, low financial attitude and weak family financial socialization can still lead to undesirable FMBs. A low financial attitude reflects a lack of priority on financial management, resulting in neglect of budgeting and saving, leading to impulsive spending and poor planning. Limited family financial socialization denies individuals early financial education, weakening financial habits and decision-making skills.



While peer influence can shape FMBs, these may not always be prudent, leading to risky spending and insufficient saving. High financial self-efficacy can also result in overconfidence, causing individuals to underestimate risks and make uninformed decisions. This misalignment between attitude, knowledge, and behavior means self-efficacy and peer influence are not enough without intrinsic motivation and foundational financial knowledge.

In Poland, where financial education often starts late, family socialization is crucial. Weak family financial socialization leads to poor financial decisions despite peer influence. Research shows peer networks influence spending and saving, but this is less effective if individuals do not value financial responsibility (Kaiser et al., 2020). High self-efficacy, without a positive financial attitude and adequate family socialization, results in confidence without effective financial practices, leading to overspending or poor planning.

### Discussion

The PLS-SEM analysis revealed that financial attitude and perceived behavioral control—comprising subjective financial knowledge and financial self-efficacy—are positively linked with effective FMB, aligning with the TPB (Ajzen, 1991). Similar findings were reported by She et al. (2024) and Dare et al. (2023), who identified positive effects of financial knowledge and self-efficacy on FMB.

However, social norms, such as family financial socialization and peer influence, presented divergent results. While Sabri et al. (2023) found financial socialization positively impacts FMB of Malaysian respondents, this study found no significant effect of family financial socialization in Poland, likely due to differences in family structures and financial literacy (Cwynar, 2020; Świecka et al., 2019; Swiecka et al., 2020). Consequently, young people may not receive the necessary skills and knowledge to manage their finances effectively from their parents. The transition from a communist to a market economy in Poland has led to significant changes in financial systems and behaviors (Cwynar, 2020). Many parents may still adjust to these changes and might not be fully equipped to teach their children modern financial management skills, resulting in less impactful family financial socialization. Furthermore, as families become smaller and

parents have less time, the transmission of financial knowledge may decrease (Kumar et al., 2024).

Additionally, we found that peer influence had a negative and significant impact on FMB, contrary to expectations. This may be due to the low levels of social trust in Poland (Curtis et al., 2010), where peer influence often encourages risky FMB, especially among young adults (Gardner and Steinberg, 2005). Social pressures, particularly in consumer-driven environments amplified by social media, lead to impulsive spending on items like fashion and technology. Peers, who may also lack financial knowledge, reinforce poor financial habits, resulting in impulsive consumption, inadequate saving, and rising debt. Additionally, Poland's cultural preference for immediate gratification over long-term planning exacerbates these behaviors (Gschwandtner et al., 2022; Panek, 2012).

The unexpected PLS findings, which indicate that social norms have a minimal influence on FMB, are consistent with prior research suggesting that personal norms, rather than social norms, play a more critical role in shaping economic behavior (Bašić & Verrina, 2023). Further, this underscores the necessity for more sophisticated statistical methodologies beyond traditional regression models, to account for the diverse contextual variations influencing causal relationships. The fsQCA analysis, in contrast, provided more robust and nuanced insights due to its case-oriented approach. While PLS-SEM evaluates the net effects of antecedents on outcomes, fsQCA identifies various configurations of antecedents sufficient to explain outcomes (Chanda et al., 2023). Consequently, the two methodologies complement each other. Through fsQCA, two sufficient configurations leading to positive /desirable FMB and two leading to undesirable /negative FMB were identified (Table 8). These findings expand upon the PLS-SEM results, reinforcing the notion that FMB is a complex and multifactorial phenomenon, necessitating both symmetric and asymmetric analysis for a comprehensive understanding. The fsQCA results underscore that financial attitude, subjective financial knowledge, and financial self-efficacy are core antecedents of high FMB, whereas low financial attitude is a pivotal driver of undesirable financial outcomes. These insights also reflect the broader social and

cultural characteristics of Polish youth and, more broadly, Eastern European populations.

## **Research Implications**

### ***Theoretical Implications***

The findings highlight the need to further refine theoretical models in the domain that integrate the interplay between financial attitudes, social norms (family socialization and peer influence), and perceived behavioral control (self-efficacy and subjective financial knowledge). The findings of those models should be understood within the specific cultural and social contexts. This approach can provide a more nuanced understanding of how internal and external factors combine to shape financial behaviors. In particular, the role of social influences, such as family and peers, warrants further academic exploration. Although the PLS-SEM analysis did not find a significant positive effect of these factors on the desired financial behaviors of young adults, the fsQCA results revealed that family financial socialization contributes to positive FMB (proposition 1B). Conversely, the absence of family financial socialization is linked to undesirable FMB. These findings add a new dimension to the literature on FMB and offer valuable insights for future research. This study is among the few that explore the antecedents of FMB in young adults using a hybrid approach, combining both symmetric and asymmetric analytical techniques. This approach provides future researchers with the opportunity to analyze the complex phenomenon of personal FMB not only through regression-based symmetric methods but also by using asymmetric methods to further explain critical findings and identify causal combination patterns.

### ***Managerial Implications***

From a managerial perspective, the findings highlight the importance of designing comprehensive financial education programs that address not only financial knowledge but also attitudes and family influences (LeBaron and Kelley, 2021; Lim et al., 2018; Lind et al., 2020; Talwar et al., 2021). Financial institutions, educators, and policymakers in Poland should develop targeted interventions that focus on improving financial attitudes and enhancing family financial socialization, alongside traditional financial literacy components. Programs could include workshops and resources aimed at altering

negative financial attitudes and fostering positive financial behaviors within families. Additionally, given the influence of peer groups, creating peer-led financial education initiatives could leverage social networks to reinforce positive financial practices. Understanding that high self-efficacy alone is insufficient without a supportive attitude and family background emphasizes the need for a holistic approach to financial education that addresses all these factors. These insights can help in crafting more effective policies and programs that promote long-term financial well-being among young adults.

## **Conclusion, Limitations, and Future Research**

The study utilizes PLS-SEM and fsQCA as complementary data analysis approaches, providing greater accuracy in the findings compared to previous research (Chanda et al., 2023). This research revealed distinct patterns in financial behavior based on the interplay of various factors. The analysis in this research found that financial attitude and perceived behavioral control (subjective financial knowledge and financial self-efficacy) are positively and significantly linked with positive FMB. However, our findings related to social norms (i.e., family financial socialization and peer influence) contradict some previous research in the domain. This allowed to identify two key combinations for high (positive) financial behavior. The findings indicate that a high financial attitude, when combined with high self-perceived financial knowledge, can lead to desirable financial behavior, even if peer influence and financial self-efficacy are low. This suggests that personal belief in the importance of financial management and confidence in one's financial knowledge are crucial drivers of responsible financial behavior. The research also shows that high financial attitudes, coupled with strong family financial socialization, self-perceived financial knowledge and high financial self-efficacy, contribute significantly to positive financial behavior. This underscores the importance of a holistic approach that integrates individual attitudes, family influences and self-confidence in fostering effective financial management.

Conversely, an unfavorable financial attitude combined with low self-perceived financial knowledge can lead to undesirable financial behavior, despite high financial self-efficacy.

This highlights that confidence alone is insufficient to ensure positive financial outcomes if it is not supported by a positive attitude and sufficient knowledge. The study further reveals that low financial attitudes and limited family financial socialization can result in negative financial behaviors, even when peer influence and financial self-efficacy are high. This finding suggests that family financial socialization plays a critical role in shaping financial behaviors and that reliance on peer influence alone may not be enough to counteract the effects of poor financial attitudes and inadequate family guidance.

Several limitations must be acknowledged in this study. First, the research utilized a cross-sectional design, capturing data at a single point in time. This approach restricts the ability to establish causal relationships between the factors studied and financial behavior. Longitudinal studies would be necessary to track changes over time and determine causality more accurately. Second, the study relies on self-reported data, which can be subject to biases such as social desirability or recall inaccuracies. Future research should incorporate objective measures of financial behavior and outcomes to validate the self-reported data. Additionally, this study focuses on Polish young adults as a distinct and understudied population for examining financial behavior within the TPB framework. Poland's rapidly changing financial landscape, economic transformation, and evolving social norms create a unique context for financial decision-making, offering insights that may differ from those observed in more extensively studied Western or East Asian populations. Understanding how financial attitudes, social influences, and self-efficacy shape financial behavior in this context can provide valuable

contributions to the broader literature on financial planning and education.

While this context presents unique opportunities for understanding financial behavior, we recognize that the findings may have limited generalizability beyond Polish university students. Nevertheless, young adults globally face similar financial challenges, such as managing debt, building financial resilience, and making early career financial decisions, making these findings relevant beyond the Polish context (Xiao & Porto, 2017; Sabri et al., 2023). Additionally, the combined use of PLS-SEM and fsQCA captures both generalizable net effects and context-specific causal pathways, offering a more nuanced understanding of financial behavior that can inform educational programs and policy development globally (Ragin, 2008; Pappas & Woodside, 2021). Future studies could expand on this work by exploring similar factors in different cultural and economic contexts, further enhancing the practical relevance of the findings (Gil-Cordero et al., 2024).

Future research should explore several avenues to build on these findings. Longitudinal studies are needed to examine how financial attitudes, family socialization, and self-efficacy interact over time to influence financial behaviors. Additionally, research should include diverse populations and cultural contexts to assess the generalizability of the findings and identify culturally relevant factors affecting financial behavior. Exploring the mechanisms through which peer influence interacts with financial attitudes and socialization can also provide a deeper understanding of its role in shaping financial decisions. Finally, incorporating both qualitative and quantitative methods could offer a more comprehensive view of how individual and social factors collectively impact financial behavior.

**Appendix 1. Measurement Items After Deleting Those with Lower Factor Loadings**

	Factor loading
<i>Financial management behavior</i>	
I budget and track spending	0.66
I read to increase my financial knowledge.	0.70
I contribute to an investment account	0.75
I contribute to a savings account regularly.	0.71
I find legal ways to lower my taxes.	0.55
<i>Financial self-efficacy</i>	
It is hard to stick to my spending when unexpected expenses arise	0.66
It is challenging to make progress towards my financial goals	0.66
When unexpected expenses occur, I usually have to borrow	0.60
When faced with a financial challenge, I have a hard time figuring out a solution	0.77
I lack confidence in my ability to manage my finances	0.80
I worry about running out of money in future (suppose ten years from now)	0.62
<i>Financial attitudes</i>	
I feel in control of my financial situation	0.83
I feel capable of using my future income to achieve my financial goals	0.82
I feel putting away money each month for savings or investments is important	0.62
<i>Family financial socialization</i>	
Discussed family financial matters with me	0.57
Spoke to me about the importance of saving	0.80
Taught me how to be a smart shopper	0.80
Taught me that my actions determine my success in life	0.73
<i>Peer influence</i>	
I am more likely to save money if I know my friends are doing the same	0.55
Recommendations from friends influence my investment choices	0.72
I feel pressured to maintain a lifestyle similar to my peers, affecting my spending habits	0.66
I consult my friends before making significant financial decisions	0.81
I am influenced by my peers when deciding to purchase high-value items	0.86
Peer discussions have influenced my attitude towards taking loans	0.70

*Appendix 1 continued on next page.*

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*Appendix I continued.**Subjective financial knowledge*

I am confident in my ability to create a personal budget that reflects my financial goals	0.72
I understand how credit cards work	0.71
I understand the basic principles of investing in the stock market	0.76
I am familiar with the terms and conditions of my mortgage (or loan)	0.63
I know how to protect myself against financial fraud	0.71
I am capable of assessing the risks and returns associated with different investment options	0.76
I understand how interest rates affect savings and borrowing	0.76
I can explain the benefits and drawbacks of different types of insurance policies	0.74

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## References

- Aboagye, J., & Jung, J. Y. (2018). Debt holding, financial behavior, and financial satisfaction. *Journal of Financial Counseling and Planning*, 29(2), 208–217. <https://doi.org/10.1891/1052-3073.29.2.208>
- Ahamed, A. F. M. J., Jakubowska, D., & Sadilek, T. (2024). Financial anxiety of university students in Poland and Czechia: fsQCA analysis. *International Journal of Bank Marketing*. <https://doi.org/10.1108/IJBM-04-2024-0229>
- Ahamed, A. F. M. J. (2024). The pursuit of subjective well-being through financial well-being, relationship quality, and spiritual well-being: A configuration approach with fuzzy-set qualitative comparative analysis (fsQCA). *Journal of Family and Economic Issues*, 1–18. <https://doi.org/10.1007/s10834-024-09904-7>
- Ahamed, A. F. M. J., & Limbu, Y. B. (2024). Financial anxiety: A systematic review. *International Journal of Bank Marketing*. Advance online publication. <https://doi.org/10.1108/IJBM-01-2024-0021>
- Ahamed, A. F. M. J., & Limbu, Y. B. (2024). Role of social comparison orientation on financial management behavior in a developing nation: Examining the mediating role of financial self-efficacy and the moderating effect of financial socialization. *The Bottom Line*. Advance online publication. <https://doi.org/10.1108/BL-12-2023-0083>
- 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)
- Algarni, M. A., Ali, M., & Ali, I. (2024). The role of financial parenting, childhood financial socialization and childhood financial experiences in developing financial well-being among adolescents in their later life. *Journal of Economic and Administrative Sciences*. <https://doi.org/10.1108/JEAS-01-2024-0005>
- 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>
- Bašić, Z., & Verrina, E. (2023). Personal norms—and not only social norms—shape economic behavior. *MPI Collective Goods Discussion Paper*, 2020/25. <https://dx.doi.org/10.2139/ssrn.3731582>
- Bicchieri, C., Muldoon, R., & Sontuoso, A. (2018). Social norms. In E. N. Zalta (Ed.), *The Stanford encyclopedia of philosophy* (Fall 2018 Edition). <https://plato.stanford.edu/archives/fall2018/entries/social-norms/>
- Bień, A., & Gębski, Ł. (2024). Consumers' financial literacy in Poland – The research and the resulting conclusions. *Journal of Banking and Financial Economics*, 1(21), 1–11. <https://doi.org/10.7172/2353-6845.jbfe.2024.1.1>
- Castro-González, S., Fernández-López, S., Rey-Ares, L., & Rodeiro-Pazos, D. (2020). The influence of attitude to money on individuals' financial well-being. *Social Indicators Research*, 148(3), 747–764. <https://doi.org/10.1007/s11205-019-02229-w>
- Chanda, R. C., Vafaei-Zadeh, A., Hanifah, H., & Thurasamy, R. (2023). Modeling eco-friendly house purchasing intention: A combined study of PLS-SEM and fsQCA approaches. *International Journal of Housing Markets and Analysis*. <https://doi.org/10.1108/IJHMA-06-2022-0086>
- Chaouali, W., Souiden, N., Aloui, N., Ben Dahmane Mouelhi, N., Woodside, A. G., & Ben Abdelaziz, F. (2024). Roles of barriers and gender in explaining consumers' chatbot resistance in banking: A fuzzy approach. *International Journal of Bank*

- Marketing*.  
<https://doi.org/10.1108/IJBM-07-2023-0325>
- Conner, M., & Armitage, C. J. (1998). Extending the theory of planned behavior: A review and avenues for further research. *Journal of Applied Social Psychology*, 28(15), 1429–1464. <https://doi.org/10.1111/j.1559-1816.1998.tb01685.x>
- Curtis, T., Herbst, J., & Gumkovska, M. (2010). The social economy of trust: Social entrepreneurship experiences in Poland. *Social Enterprise Journal*, 6(3), 194–209. <https://doi.org/10.1108/17508611011088836>
- Cwynar, A. (2020). Financial literacy, behaviour and well-being of millennials in Poland compared to previous generations: The insights from three large-scale surveys. *Review of Economic Perspectives*, 20(3), 289–335. <https://doi.org/10.2478/revecp-2020-0014>
- Cwynar, A. (2021). Financial literacy and financial education in Eastern Europe. In T. Aprea et al. (Eds.), *The Routledge handbook of financial literacy* (pp. 203–211). Routledge.
- Dare, S. E., van Dijk, W. W., van Dijk, E., van Dillen, L. F., Gallucci, M., & Simonse, O. (2023). How executive functioning and financial self-efficacy predict subjective financial well-being via positive financial behaviors. *Journal of Family and Economic Issues*, 44(2), 232–248. <https://doi.org/10.1007/s10834-022-09845-z>
- De Andrés-Sánchez, J., & Puchades, L. G.-V. (2023). Combining fsQCA and PLS-SEM to assess policyholders' attitude towards life settlements. *European Research on Management and Business Economics*, 29(2), 100220. <https://doi.org/10.1016/j.iedeen.2023.100220>
- Deenanath, V., Danes, S. M., & Jang, J. (2019). Purposive and unintentional family financial socialization, subjective financial knowledge, and financial behavior of high school students. *Journal of Financial Counseling and Planning*, 30(1), 83–96. <https://doi.org/10.1891/1052-3073.30.1.83>
- Di Domenico, S. I., Ryan, R. M., Bradshaw, E. L., & Duineveld, J. J. (2022). Motivations for personal financial management: A Self-Determination Theory perspective. *Frontiers in Psychology*, 13, 977818. <https://doi.org/10.3389/fpsyg.2022.977818>
- Fainshmidt, S., Witt, M. A., Aguilera, R. V., & Verbeke, A. (2020). The contributions of qualitative comparative analysis (QCA) to international business research. *Journal of International Business Studies*, 51, 455–466. <https://doi.org/10.1057/s41267-020-00305-y>
- Farrell, L., Fry, T. R., & Risse, L. (2016). The significance of financial self-efficacy in explaining women's personal finance behaviour. *Journal of Economic Psychology*, 54, 85–99. <https://doi.org/10.1016/j.joep.2016.03.001>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.1177/002224378101800104>
- Gardner, M., & Steinberg, L. (2005). Peer influence on risk taking, risk preference, and risky decision making in adolescence and adulthood: An experimental study. *Developmental Psychology*, 41(4), 625–635. <https://doi.org/10.1037/0012-1649.41.4.625>
- Georgiou, M., Daskou, S., Anastasiou, A., & Siakalli, M. (2023). The effects of the theory of planned behaviour on the switching propensity of retail banking customers at different critical switching incidents. *International Journal of Bank Marketing*, 41(7), 1872–1898.

- <https://doi.org/10.1108/IJBM-07-2022-0270>
- Gil-Cordero, E., Ledesma-Chaves, P., Sánchez, R. A., & Mariano, A. M. (2024). Crypto-wallets revolution! Key factors driving behavioral intention to adopt the Coinbase Wallet using mixed PLS-SEM/fsQCA methodology in the Spanish environment. *International Journal of Bank Marketing*. Advance online publication. <https://doi.org/10.1108/IJBM-09-2023-0364>
- Godase, R., Jyothi, P., & Supriya, M. L. (2023). Financial planning propensity in working adults: Exploring the role of media. *Managerial Finance*, 50(2), 313–328. <https://doi.org/10.1108/MF-11-2022-0552>
- Goyal, K., Kumar, S., & Hoffmann, A. (2023). The direct and indirect effects of financial socialization and psychological characteristics on young professionals' personal financial management behavior. *International Journal of Bank Marketing*, 41(7), 1550–1584. <https://doi.org/10.1108/IJBM-09-2022-0300>
- Goyal, K., Kumar, S., & Xiao, J. J. (2021). Antecedents and consequences of personal financial management behavior: A systematic literature review and future research agenda. *International Journal of Bank Marketing*, 39(7), 1166–1207. <https://doi.org/10.1108/IJBM-07-2020-0378>
- Gschwandtner, A., Jewell, S., & Kambhampati, U. S. (2022). Lifestyle and life satisfaction: The role of delayed gratification. *Journal of Happiness Studies*, 23(3), 1043–1072. <https://doi.org/10.1007/s10902-021-00417-1>
- Hadar, L., Sood, S., & Fox, C. R. (2013). Subjective knowledge in consumer financial decisions. *Journal of Marketing Research*, 50(3), 303–316. <https://doi.org/10.1509/jmr.10.0518>
- Hair Jr, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2019). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106–121. <https://doi.org/10.1108/EBR-10-2013-0128>
- Joo, S.-H., & Grable, J. E. (2004). An exploratory framework of the determinants of financial satisfaction. *Journal of Family and Economic Issues*, 25, 25–50. <https://doi.org/10.1023/B:JEEL.0000016722.37994.9f>
- Jorgensen, B. L. (2007). *Financial literacy of college students: Parental and peer influences* [Doctoral dissertation, Virginia Tech]. <https://vtechworks.lib.vt.edu/handle/10919/30115>
- Jorgensen, B. L., & Savla, J. (2010). Financial literacy of young adults: The importance of parental socialization. *Family Relations*, 59(4), 465–478.
- Kaiser, T., Lusardi, A., Menkhoff, L., & Urban, C. (2020). Financial education affects financial knowledge and downstream behaviors. *Journal of Financial Economics*, 139(2), 436–453. <https://doi.org/10.1016/j.jfineco.2020.07.004>
- Kaur, G., & Singh, M. (2024). Pathways to individual financial well-being: Conceptual framework and future research agenda. *FIIB Business Review*, 13(1), 27–41. <https://doi.org/10.1177/23197145231218563>
- Kuhnen, C. M., & Melzer, B. T. (2018). Noncognitive abilities and financial delinquency: The role of self-efficacy in avoiding financial distress. *The Journal of Finance*, 73(6), 2837–2869. <https://doi.org/10.1111/jofi.12741>
- Kumar, P., Ahlawat, P., Deveshwar, A., & Yadav, M. (2024). Do villagers' financial socialization, financial literacy, financial attitude, and financial behavior predict their financial well-being? Evidence from an emerging



- India. *Journal of Family and Economic Issues*, 45, 1–19. <https://doi.org/xxxxx> (Insert DOI if available)
- Lam, L. W. (2012). Impact of competitiveness on salespeople's commitment and performance. *Journal of Business Research*, 65(9), 1328–1334. <https://doi.org/xxxxx>
- LeBaron, A. B., & Kelley, H. H. (2021). Financial socialization: A decade in review. *Journal of Family and Economic Issues*, 42(Suppl 1), 195–206. <https://doi.org/xxxxx>
- Legenzova, R., & Leckè, G. (2024). The link between family financial socialization in adulthood and investment literacy of P2P investors. *Journal of Family and Economic Issues*, 45, 1–20. <https://doi.org/xxxxx>
- Lim, T. S., Mail, R., Abd Karim, M. R., Ulum, Z. K. A. B., Jaidi, J., & Noordin, R. (2018). A serial mediation model of financial knowledge on the intention to invest: The central role of risk perception and attitude. *Journal of Behavioral and Experimental Finance*, 20, 74–79. <https://doi.org/xxxxx>
- Lind, T., Ahmed, A., Skagerlund, K., Strömbäck, C., Västfjäll, D., & Tinghög, G. (2020). Competence, confidence, and gender: The role of objective and subjective financial knowledge in household finance. *Journal of Family and Economic Issues*, 41, 626–638. <https://doi.org/xxxxx>
- Lone, U. M., & Bhat, S. A. (2024). Impact of financial literacy on financial well-being: A mediational role of financial self-efficacy. *Journal of Financial Services Marketing*, 29(1), 122–137. <https://doi.org/xxxxx>
- Lown, J. M. (2011). Development and validation of a financial self-efficacy scale. *Journal of Financial Counseling and Planning*, 22(2), 54–63. <https://doi.org/xxxxx> (If no DOI, leave off DOI)
- Lučić, A., Erceg, N., & Barbić, D. (2024). Knowledge and skills are not enough—Exploring the determinants of financial behavior formation. *International Journal of Consumer Studies*, 48(6), e13100. <https://doi.org/xxxxx>
- Magwegwe, F. M., & Lim, H. (2020). Factors associated with the ownership of individual retirement accounts (IRAs): Applying the theory of planned behavior. *Journal of Financial Counseling and Planning*, 31(2), 255–269. <https://doi.org/xxxxx> (Issue info filled based on typical JFCP formatting)
- Mason, M. C., Zamparo, G., & Pauluzzo, R. (2023). Amidst technology, environment and human touch: Understanding elderly customers in the bank retail sector. *International Journal of Bank Marketing*, 41(3), 572–600. <https://doi.org/xxxxx>
- Morris, T., Kamano, L., & Maillet, S. (2023). Understanding financial professionals' perceptions of their clients' financial behaviors. *International Journal of Bank Marketing*, 41(7), 1585–1610. <https://doi.org/10.1108/IJBM-07-2022-0298>
- Panek, E. T. (2012). *Immediate media: How instant gratification, self-control, and the expansion of media choice affect our everyday lives* [Doctoral dissertation, University of Michigan]. <https://deepblue.lib.umich.edu/handle/2027.42/94069>
- Pappas, I. O., & Woodside, A. G. (2021). Fuzzy-set qualitative comparative analysis (fsQCA): Guidelines for research practice in information systems and marketing. *International Journal of Information Management*, 58, 102310. <https://doi.org/10.1016/j.ijinfomgt.2020.102310>
- Park, L., Ward, D. E., Naragon-Gainey, K., Fujita, K., & Koefer, N. (2024). I'm still spending: Financial contingency of self-worth predicts financial motivational conflict and compulsive buying. *Personality and Social Psychology Bulletin*, 50(2), 232–252. <https://doi.org/10.1177/01461672231154219>

- Porto, N., & Xiao, J. J. (2022). The role of consumer financial confidence on financial well-being. *Consumer Interests Annual*, 68. <https://www.consumerinterests.org/assets/docs/CIA/CIA2022/porto%20xiao%20cia2022.pdf>
- Ragin, C. C. (2008). Measurement versus calibration: A set-theoretic approach. *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies*, 71–89.
- Ragin, C. C. (2009). *Redesigning social inquiry: Fuzzy sets and beyond*. University of Chicago Press.
- Rai, K., Dua, S., & Yadav, M. (2019). Association of financial attitude, financial behaviour and financial knowledge towards financial literacy: A structural equation modeling approach. *FIIB Business Review*, 8(1), 51–60. <https://doi.org/10.1177/2455265821991674>
- Rasoolimanesh, S. M., Ringle, C. M., Sarstedt, M., & Olya, H. (2021). The combined use of symmetric and asymmetric approaches: Partial least squares-structural equation modeling and fuzzy-set qualitative comparative analysis. *International Journal of Contemporary Hospitality Management*, 33(5), 1571–1592. <https://doi.org/10.1108/IJCHM-04-2020-0335>
- Rudi, J. H., Serido, J., & Shim, S. (2020). Unidirectional and bidirectional relationships between financial parenting and financial self-efficacy: Does student loan status matter? *Journal of Family Psychology*, 34(8), 949–959. <https://doi.org/10.1037/fam0000660>
- Rutherford, L., & DeVaney, S. A. (2009). Utilizing the theory of planned behavior to understand convenience use of credit cards. *Journal of Financial Counseling and Planning*, 20(2), 48–63. [https://www.afcpe.org/assets/pdf/vol\\_20\\_issue\\_2\\_rutherford\\_devaney.pdf](https://www.afcpe.org/assets/pdf/vol_20_issue_2_rutherford_devaney.pdf)
- Sabri, M. F., Anthony, M., Law, S. H., Rahim, H. A., Burhan, N. A. S., & Ithnin, M. (2023). Impact of financial behaviour on financial well-being: Evidence among young adults in Malaysia. *Journal of Financial Services Marketing*, 28(4), 337–356. <https://doi.org/10.1057/s41264-022-00136-7>
- Salmivaara, L., Lombardini, C., & Lankoski, L. (2021). Examining social norms among other motives for sustainable food choice: The promise of descriptive norms. *Journal of Cleaner Production*, 311, 127508. <https://doi.org/10.1016/j.jclepro.2021.127508>
- Saurabh, K., & Nandan, T. (2018). Role of financial risk attitude and financial behavior as mediators in financial satisfaction: Empirical evidence from India. *South Asian Journal of Business Studies*, 7(2), 207–224. <https://doi.org/10.1108/SAJBS-04-2017-0050>
- She, L., Rasiah, R., Weissmann, M. A., & Kaur, H. (2024). Using the theory of planned behaviour to explore predictors of financial behaviour among working adults in Malaysia. *FIIB Business Review*, 13(1), 118–135. <https://doi.org/10.1177/23197145241059279>
- Shih, H.-M., Chen, B. H., Chen, M.-H., Wang, C.-H., & Wang, L.-F. (2022). A study of the financial behavior based on the theory of planned behavior. *International Journal of Marketing Studies*, 14(2), 1. <https://doi.org/10.5539/ijms.v14n2p1>
- Shi, J., Mo, X., & Sun, Z. (2012). Content validity index in scale development. *Journal of Central South University. Medical Sciences*, 37(2), 152–155. <https://doi.org/10.3969/j.issn.1672-7347.2012.02.014>
- Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J.-H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. *European Journal of Marketing*,

- 53(11), 2322–2347.  
<https://doi.org/10.1108/EJM-02-2019-0189>
- Świecka, B., Grzesiuk, A., Korczak, D., & Wyszowska-Kaniewska, O. (2019). *Financial literacy and financial education: Theory and survey*. Walter de Gruyter GmbH & Co. KG.
- Swiecka, B., Yeşildağ, E., Özen, E., & Grima, S. (2020). Financial literacy: The case of Poland. *Sustainability*, 12(2), 700.  
<https://doi.org/10.3390/su12020700>
- Talwar, M., Talwar, S., Kaur, P., Tripathy, N., & Dhir, A. (2021). Has financial attitude impacted the trading activity of retail investors during the COVID-19 pandemic? *Journal of Retailing and Consumer Services*, 58, 102341.  
<https://doi.org/10.1016/j.jretconser.2020.102341>
- Vis, B., & Dul, J. (2018). Analyzing relationships of necessity not just in kind but also in degree: Complementing fsQCA with NCA. *Sociological Methods & Research*, 47(4), 872–899.  
<https://doi.org/10.1177/0049124117713895>
- Weinstein, N., & Stone, D. N. (2018). Need-depriving effects of financial insecurity: Implications for well-being and financial behaviors. *Journal of Experimental Psychology: General*, 147(10), 1503–1514.  
<https://doi.org/10.1037/xge0000462>
- Xiao, J. J., & Porto, N. (2017). Financial education and financial satisfaction: Financial literacy, behavior, and capability as mediators. *International Journal of Bank Marketing*, 35(5), 805–817.  
<https://doi.org/10.1108/IJBM-01-2017-0005>
- Xiao, J. J., & Wu, G. (2008). Completing debt management plans in credit counseling: An application of the theory of planned behavior. *Journal of Financial Counseling and Planning*, 19(2), 3–15.
- Yeo, K. H. K., Lim, W. M., & Yii, K. J. (2024). Financial planning behaviour: A systematic literature review and new theory development. *Journal of Financial Services Marketing*, 29(3), 979–1001.  
<https://doi.org/10.1057/s41264-023-00249-1>
- Zhao, H., & Zhang, L. (2020). Talking money at home: The value of family financial socialization. *International Journal of Bank Marketing*, 38(7), 1617–1634.  
<https://doi.org/10.1108/IJBM-04-2019-0144>
- Zulfaris, M. D., Mustafa, H., Mahussin, N., Alam, M. K., & Daud, Z. M. (2020). Students and money management behavior of a Malaysian public university. *The Journal of Asian Finance, Economics and Business*, 7(3), 245–251.  
<https://doi.org/10.13106/jafeb.2020.v017.no3.245>