INVEST: Jurnal Inovasi Bisnis dan Akuntansi
Volume 7 No 1 (2026) Page : 267-287

Pathways to Financial Stability: Insights from Indonesia

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ABSTRACT

This study examines the effects of financial literacy, financial behavior, and financial stress on financial well-being among low-income individuals in Indonesia. It also investigates the mediating role of financial behavior in the relationships between financial literacy, financial stress, and financial well-being. Using a quantitative approach, data were collected through structured questionnaires and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate that financial literacy positively influences both financial well-being and financial behavior, highlighting the important role of financial knowledge in improving individuals' financial conditions. In contrast, financial behavior does not significantly influence financial well-being, suggesting that responsible financial practices alone may not be sufficient to improve financial outcomes among low-income groups facing structural economic constraints. The study also reveals that financial stress has a positive relationship with financial well-being and financial behavior, although these findings differ from the hypothesized direction and therefore require careful interpretation. Furthermore, financial behavior does not mediate the relationships between financial literacy, financial stress, and financial well-being. These findings emphasize the dominant direct role of financial literacy in enhancing financial well-being among economically vulnerable populations. This study contributes to the financial well-being literature by demonstrating that financial behavior does not always function as an effective transmission mechanism in low-income contexts. Practically, the study suggests that financial education programs should focus on strengthening financial knowledge, financial confidence, and decision-making capacity while also addressing structural financial challenges faced by low-income individuals.

Keywords: *Financial Literacy, Financial Stress, Financial Behavior, Financial Well-Being, Low-Income Individuals*

1. Introduction

Financial well-being has become an increasingly important issue in both developed and developing countries, particularly among low-income populations who are more vulnerable to financial shocks and economic instability. Financial well-being reflects an individual's ability to meet current financial needs, maintain financial security for the future, and make financial decisions that support a satisfactory quality of life (Brüggen et al., 2017; Netemeyer et al., 2018). In the Indonesian context, financial vulnerability remains a significant concern, especially among low-income individuals who often face unstable income, limited savings, and restricted access to formal financial services. According to the World Bank (2022), many low-income households in Indonesia have limited financial resilience and are highly vulnerable to unexpected economic shocks.

Previous studies have identified financial literacy, financial behavior, and financial stress as key determinants of financial well-being. Financial literacy refers to an individual's knowledge and understanding of financial concepts, enabling them to make informed decisions regarding saving, borrowing, and investing (Lusardi & Mitchell, 2014; Grohmann, 2018). Financial behavior

Submitted : February 17, 2026, Accepted : May 20, 2026, Published: May 21, 2026
e-ISSN (2745-4606), p-ISSN (2745-4614)
http://journal.al-matani.com/index.php/invest/index

represents the practical application of this knowledge, including activities such as budgeting, saving, and managing expenses (Xiao & Porto, 2017; Adam et al., 2017). Meanwhile, financial stress reflects the psychological pressure arising from financial difficulties and the inability to meet financial obligations (Fan & Babiarz, 2019). These three factors are widely recognized as important components in shaping individuals' financial conditions.

However, empirical findings regarding the relationships among these variables remain inconsistent. Several studies report that financial behavior significantly improves financial well-being (Potocki & Cierpiał-Wolan, 2019), while others find weak or insignificant relationships, particularly among vulnerable populations (Osman & Madzlan, 2018); Adam et al., 2019). Similarly, financial stress is generally associated with lower financial well-being, yet some studies suggest that individuals may respond to financial pressure by adopting more cautious and adaptive financial behavior (Netemeyer et al., 2018). These mixed findings indicate that the relationships between financial literacy, financial behavior, financial stress, and financial well-being are still not fully understood and require further investigation.

Another important limitation in the existing literature is the lack of empirical studies focusing specifically on low-income populations in developing countries such as Indonesia. Most prior research has been conducted in developed economies or among middle-income groups, which limits the generalizability of findings to financially vulnerable populations (Kabadayi & O'Connor, 2019; Mahdzan et al., 2019). Low-income individuals face unique constraints, including limited income, restricted access to financial services, and higher exposure to financial risks, which may influence how financial literacy and financial behavior affect financial well-being. Therefore, examining this issue within the context of low-income individuals in Indonesia is both relevant and necessary.

Furthermore, the mediating role of financial behavior in explaining the relationship between financial literacy and financial well-being, as well as between financial stress and financial well-being, remains underexplored. Theoretically, financial capability theory suggests that financial knowledge should translate into behavior and ultimately improve financial well-being (Sherraden, 2013). However, empirical evidence regarding this mediation mechanism remains inconclusive, particularly in the context of low-income populations.

Based on these gaps, this study aims to examine the direct effects of financial literacy, financial stress, and financial behavior on financial well-being among low-income individuals in Indonesia. In addition, this study investigates whether financial behavior mediates the relationship between financial literacy and financial well-being, as well as between financial stress and financial well-being.

The novelty of this study lies in three main aspects. First, this study provides empirical evidence from low-income populations in Indonesia, which are still underrepresented in the financial well-being literature. Second, it examines the mediating role of financial behavior to better understand the mechanism through which financial literacy and financial stress influence financial well-being. Third, this study offers new insights into the possibility that financial behavior may not play a significant mediating role, thereby contributing to the refinement of theoretical understanding in this area.

This study is expected to contribute both theoretically and practically. Theoretically, it enriches the literature on financial well-being by clarifying the role of financial behavior as a potential mediator. Practically, the findings provide important implications for policymakers, financial institutions, and social welfare programs in designing targeted financial literacy and financial resilience initiatives to improve financial well-being among low-income communities in Indonesia.

2. Literature Review

Financial Capability Theory as the Theoretical Foundation

This study is grounded in financial capability theory, which explains that financial well-being is influenced not only by financial knowledge but also by how individuals apply that knowledge in managing financial resources. Financial capability emphasizes the interaction between financial literacy, financial behavior, and financial outcomes, particularly financial well-being (Sherraden, 2013; Bongomin et al., 2021). In this perspective, financial literacy provides the cognitive foundation for decision-making, while financial behavior represents the practical mechanism through which knowledge is translated into financial outcomes. Recent studies also highlight that financial capability is particularly important among low-income individuals, as financial vulnerability is shaped not only by limited income but also by limited financial knowledge, weak financial planning, and high exposure to financial stress (Koomson et al., 2021; Rahman et al., 2021). Therefore, financial well-being should be understood as the result of both cognitive factors (financial literacy), behavioral factors (financial behavior), and psychological pressures (financial stress).

Financial Well-being

Financial well-being refers to an individual's ability to meet current financial needs, manage future financial obligations, and maintain financial security over time. It also reflects subjective perceptions of financial satisfaction, control, and freedom of choice (Brüggen et al., 2017; Netemeyer et al., 2018). Financial well-being extends beyond economic conditions and is closely linked to overall life satisfaction, mental health, and social stability (Taylor et al., 2014; Yeo & Lee, 2022). For low-income individuals, financial well-being is often more difficult to achieve due to limited resources, unstable income, and restricted access to financial services. Empirical evidence suggests that financial vulnerability significantly reduces perceived well-being and increases financial stress, particularly among marginalized groups (Koomson et al., 2021; Zhang & Chatterjee, 2023). Therefore, understanding the determinants of financial well-being in this context is crucial.

Financial Behavior and Financial Well-being

Financial behavior refers to how individuals manage their financial resources, including budgeting, saving, spending, and debt management. According to financial capability theory, financial behavior serves as a key mechanism through which financial knowledge is translated into financial outcomes (Xiao & Porto, 2017; Hasan et al., 2022). Several studies have shown that sound financial behavior positively contributes to financial well-being. Individuals who engage in responsible financial practices, such as saving regularly and controlling expenses, tend to experience higher levels of financial security and satisfaction (Potocki & Cierpiał-Wolan, 2019); Iramani & Lutfi, 2021). More recent studies also confirm that financial behavior plays an important role in shaping financial well-being, particularly among developing country populations (Nguyen et al., 2022; Sabri & Zakaria, 2021). However, empirical findings remain inconsistent. Some studies indicate that financial behavior may not significantly improve financial well-being when individuals face structural constraints such as low income, limited savings capacity, or economic instability (Osman & Madzlan, 2018; Rahman et al., 2021). This suggests that the effectiveness of financial behavior may depend on the socioeconomic context. Therefore, this study re-examines the role of financial behavior in influencing financial well-being among low-income individuals in Indonesia.

H1: *Financial behavior has a positive effect on financial well-being.*

Financial Literacy and Financial Well-being

Financial literacy refers to the ability to understand financial concepts and apply them in decision-making processes. It includes knowledge of budgeting, saving, investment, interest rates, and financial risk management (Lusardi & Mitchell, 2014; Grohmann, 2018). Financial literacy is widely recognized as a key determinant of financial well-being. Individuals with higher financial literacy tend to make more informed financial decisions, manage debt more effectively, and plan for future financial needs (O'Neill et al., 2021; Sharma & Kota, 2022). In addition, financial literacy has been shown to improve access to financial services and increase financial inclusion, which in turn enhances financial well-being (Bongomin et al., 2021; Ali et al., 2022). Recent studies also emphasize that financial literacy is particularly important in the context of digital financial services and economic uncertainty, where individuals must navigate increasingly complex financial environments (Choung et al., 2023; OECD, 2023). Therefore, higher financial literacy is expected to improve financial well-being among low-income individuals.

H2: *Financial literacy has a positive effect on financial well-being.*

Financial Stress and Financial Well-being

Financial stress refers to psychological pressure arising from financial difficulties, such as insufficient income, debt burden, and inability to meet financial obligations. Financial stress can negatively affect mental health, reduce life satisfaction, and impair decision-making ability (Fan & Babiarz, 2019; O'Neill et al., 2021). Empirical evidence suggests that financial stress is generally associated with lower financial well-being. Individuals experiencing financial stress tend to report lower financial satisfaction and higher levels of anxiety and uncertainty (Yeo & Lee, 2022; Zhang & Chatterjee, 2023). This effect is more pronounced among low-income individuals, who are more vulnerable to income shocks and financial instability (Koomson et al., 2021). Therefore, this study assumes that financial stress negatively influences financial well-being.

H3: *Financial stress has a negative effect on financial well-being.*

Financial Stress and Financial Behavior

Financial stress may also influence financial behavior. Under conditions of financial pressure, individuals may struggle to plan finances effectively, leading to short-term decision-making and reduced financial discipline. Stress can reduce cognitive capacity and increase impulsive behavior, which negatively affects financial management (Yeo & Lee, 2022). However, some studies suggest that financial stress may also encourage more cautious financial behavior, as individuals attempt to manage limited resources more carefully (Rahman et al., 2021). Despite this possibility, the dominant view in the literature suggests that financial stress tends to weaken financial behavior due to psychological pressure and reduced decision-making capacity.

H4: *Financial stress has a negative effect on financial behavior.*

Financial Literacy and Financial Behavior

Financial literacy is expected to improve financial behavior because individuals who understand financial concepts are more capable of applying appropriate financial practices. Financially literate individuals are more likely to budget effectively, save regularly, and avoid excessive debt (Xiao & Porto, 2017; Hasan et al., 2022).

Recent studies confirm that financial literacy positively influences financial behavior across different populations and economic contexts (Nguyen et al., 2022; Choung et al., 2023). In developing countries, financial literacy is particularly important in promoting responsible financial behavior and improving financial decision-making.

H5: *Financial literacy has a positive effect on financial behavior.*

Mediating Role of Financial Behavior

Financial behavior is proposed as a mediating variable because financial capability theory suggests that financial knowledge influences financial outcomes through behavior. Financial literacy alone may not directly improve financial well-being unless individuals translate knowledge into practical financial actions (Sherraden, 2013; Hasan et al., 2022).

The mediation mechanism can be explained as follows: financial literacy enhances individuals' understanding of financial concepts, which leads to improved financial behavior, such as budgeting and saving. These behaviors, in turn, improve financial well-being by increasing financial security and reducing uncertainty (Setiawan & Iramani, 2023; Choung et al., 2023).

Similarly, financial behavior may mediate the relationship between financial stress and financial well-being. Financial stress may influence how individuals manage their finances. If stress leads to poor financial behavior, financial well-being may decline. Conversely, if individuals respond to stress by improving financial behavior, the negative impact may be reduced (Rahman et al., 2021; Yeo & Lee, 2022).

However, empirical findings on this mediation effect remain inconsistent. Some studies show that financial behavior significantly mediates financial well-being, while others find no significant mediation effect (Setiawan & Iramani, 2023). This inconsistency highlights the need to test the mediating role of financial behavior in the context of low-income individuals in Indonesia.

H6: *Financial behavior mediates the relationship between financial stress and financial well-being.*

H7: *Financial behavior mediates the relationship between financial literacy and financial well-being.*

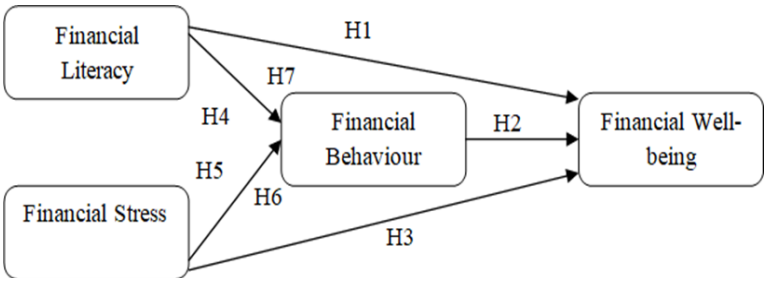

Figure 1. Research model

3. Methods

This study employed previously validated measurement scales adapted to the research context. Financial well-being was measured using an eight-item scale adapted from Prawitz et al. (2017), which captures perceived financial condition, financial satisfaction, and future financial security. Financial behavior was measured using items adapted from Rai et al. (2019), Xiao and Porto (2017), and Rahman et al. (2021). Financial stress was measured using items adapted from Prawitz et al. (2017), O'Neill et al. (2021), Rahman et al. (2021), and Yeo and Lee (2022), which focus on financial pressure, financial distress, and perceived difficulty in meeting financial obligations. Financial literacy was measured using items adapted from Mmari et al. (2024), OECD (2023), and prior financial literacy studies.

All items were measured using a five-point Likert scale ranging from 1 (strongly disagree/high discomfort) to 5 (strongly agree/low discomfort). Example items include: "I am satisfied with my current financial condition" (FWB), "I regularly plan my monthly expenses" (FB), "I feel stressed about my financial situation" (FS), and "I understand basic financial concepts

such as interest rates and inflation" (FL). The inclusion of sample items improves transparency and supports the reproducibility of the study (Hair et al., 2019; Gutter & Copur 2021).

The questionnaire was developed in English and translated into Bahasa Indonesia using a back-translation procedure to ensure semantic equivalence (Brislin, 1980). A pilot test was conducted with five participants (three academics and two respondents) to assess clarity, wording, and comprehension (Osborne et al., 2013). Minor revisions were made based on feedback to improve readability and contextual relevance.

Sampling and Data Collection

The target population of this study consists of low-income individuals in Indonesia, defined as individuals with a monthly income of approximately IDR 7,000,000 or below. This threshold was selected to capture financially vulnerable groups who are more likely to experience financial stress and limited financial well-being.

A purposive sampling technique was employed because the study required respondents who met specific criteria, namely low-income status and basic financial decision-making responsibility. While non-probability sampling does not allow statistical generalization, it is appropriate for theory testing and model estimation in behavioral research when respondents are selected based on relevant characteristics (Sarstedt et al., 2018; Hair et al., 2019).

A total of 350 questionnaires were distributed, and 300 valid responses were retained after excluding incomplete or inconsistent responses. To assess non-response bias, early and late respondents were compared using independent sample t-tests, and no significant differences were found, indicating that non-response bias is unlikely to affect the results (Armstrong & Overton, 1977).

Respondent Characteristics

The demographic profile of respondents includes gender, age, education level, occupation, and monthly income. The inclusion of demographic variables is important to understand the characteristics of low-income individuals and to ensure the robustness of the analysis (Mahdzan et al., 2019). These variables also provide contextual insights into financial behavior and financial well-being patterns among respondents.

Data Analysis Technique

This study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 3.3.2. PLS-SEM was selected because it is suitable for complex models involving multiple constructs and mediation relationships, does not require strict normality assumptions, and performs well with relatively small to medium sample sizes (Hair et al., 2019; Hult et al., 2021).

Unlike covariance-based SEM (CB-SEM), PLS-SEM focuses on maximizing the explained variance (R^2) of endogenous constructs and is particularly appropriate for predictive and exploratory research (Hair et al., 2019). In this study, PLS-SEM is appropriate because the research model includes multiple direct and indirect (mediating) relationships between financial literacy, financial stress, financial behavior, and financial well-being.

The analysis followed a two-step approach. First, the measurement model was evaluated using outer loadings, composite reliability (CR), Cronbach's alpha, and average variance extracted (AVE) to assess reliability and convergent validity. Discriminant validity was evaluated using both the Fornell-Larcker criterion and the heterotrait-monotrait ratio (HTMT) (Henseler et al., 2015). Second, the structural model was assessed using path coefficients, t-statistics, p-values, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and variance inflation factor (VIF) to evaluate multicollinearity and predictive capability.

Assessment of Data Quality

To ensure data quality, several diagnostic tests were conducted. First, data normality was assessed using skewness and kurtosis values. Although PLS-SEM does not require normal distribution, assessing data distribution helps ensure robustness (Hair et al., 2019).

Second, common method bias (CMB) was evaluated using Harman's single-factor test and full collinearity VIF. The results indicated that no single factor accounted for the majority of variance and all VIF values were below the threshold of 3.3, suggesting that common method bias is not a serious concern (Kock, 2015).

Third, multicollinearity was assessed using VIF values, where values below 5 indicate no multicollinearity issues (Hair et al., 2019).

Power Analysis

To ensure adequate sample size, power analysis was conducted based on the minimum sample requirement for PLS-SEM. According to Hair et al. (2019), the sample size should exceed the "10-times rule," which requires at least ten times the maximum number of structural paths pointing at a construct. In addition, statistical power analysis suggests that a sample size of 300 is sufficient to detect medium effect sizes at a 5% significance level with adequate statistical power (Cohen, 1992). Therefore, the sample size used in this study is considered adequate for model estimation and hypothesis testing.

Ethical Considerations

This study adhered to ethical research standards. All respondents participated voluntarily and were informed about the purpose of the study prior to data collection. Informed consent was obtained from all participants, and their anonymity and confidentiality were guaranteed. The data were used solely for academic purposes and were not disclosed to any third parties.

4. Result and Discussion

Results

Respondent Characteristics

To improve the transparency of the sample profile, this study presents the demographic characteristics of the respondents, including gender, age, education level, occupation, and monthly income. The respondents were low-income individuals in Indonesia who met the inclusion criteria of having a monthly income of IDR 7,000,000 or below and being involved in personal or household financial decision-making. The demographic profile is important because financial literacy, financial behavior, financial stress, and financial well-being may vary across socioeconomic characteristics.

Table 1. Demographic Profile of Respondents

Demographic Variable	Category	Frequency	Percentage
Gender	Male	132	44.0%
	Female	168	56.0%
Total		300	100.0%
Age	< 25 years	54	18.0%
	25–34 years	108	36.0%
	35–44 years	81	27.0%
	45–54 years	39	13.0%
	> 54 years	18	6.0%
Total		300	100.0%
Education Level	Senior high school or below	126	42.0%

	Diploma	57	19.0%
	Bachelor's degree	102	34.0%
	Postgraduate	15	5.0%
Total		300	100.0%
Occupation	Employee	114	38.0%
	Self-employed	78	26.0%
	Informal worker	69	23.0%
	Unemployed/Other	39	13.0%
Total		300	100.0%
Monthly Income	< IDR 2,500,000	96	32.0%
	IDR 2,500,001–5,000,000	147	49.0%
	IDR 5,000,001–7,000,000	57	19.0%
Total		300	100.0%

The demographic profile presented in Table X provides an overview of the respondents involved in this study. Overall, the respondents represent low-income individuals with diverse socioeconomic backgrounds in terms of gender, age, education level, occupation, and monthly income. Female respondents represent a slightly larger proportion of the sample, while male respondents also account for a substantial share. This indicates that the study includes perspectives from both gender groups in examining financial literacy, financial behavior, financial stress, and financial well-being.

In terms of age, most respondents are within the productive age groups, particularly those aged 25–34 years and 35–44 years. This distribution suggests that the issue of financial well-being is highly relevant among individuals who are actively involved in employment, income generation, household financial management, and daily financial decision-making. The education profile also shows variation, with respondents coming from senior high school, diploma, bachelor's degree, and postgraduate backgrounds. This variation is important because education may influence financial knowledge, financial decision-making capacity, and the ability to understand financial products and services.

Regarding occupation, the respondents consist of employees, self-employed individuals, informal workers, and unemployed or other occupational groups. This occupational diversity reflects the characteristics of low-income individuals who may experience different levels of income stability and financial vulnerability. The monthly income distribution confirms that all respondents meet the low-income criteria used in this study, namely individuals with monthly income of IDR 7,000,000 or below. Most respondents fall within the income range of IDR 2,500,001–5,000,000, followed by those earning below IDR 2,500,000. This supports the appropriateness of the sample for examining financial well-being among financially vulnerable groups in Indonesia.

Measurement Model Assessment

The measurement model was evaluated to assess the reliability and validity of the constructs used in this study. The assessment included outer loadings, Cronbach's alpha, composite reliability, and average variance extracted. Following Hair et al. (2019), outer loading values above 0.70 indicate indicator reliability, Cronbach's alpha and composite reliability values above 0.70 indicate internal consistency reliability, and AVE values above 0.50 indicate convergent validity.

As presented in Table 2, all outer loading values exceed the recommended threshold of 0.70, indicating that each indicator adequately represents its respective construct. In addition, Cronbach's alpha and composite reliability values for all constructs are above 0.70, confirming strong internal consistency reliability. The AVE values also exceed the recommended minimum threshold of 0.50. Specifically, the AVE values are 0.741 for Financial Behavior, 0.714 for

Financial Literacy, 0.799 for Financial Stress, and 0.669 for Financial Well-being. These results confirm that all constructs have adequate convergent validity.

Table 2. Measurement Model Assessment

Construct / Item	Loadings	CA	CR	AVE
Financial Behavior		0.956	0.962	0.741
FB1	0.738			
FB2	0.788			
FB3	0.801			
FB4	0.902			
FB5	0.899			
FB6	0.902			
FB7	0.899			
FB8	0.896			
FB9	0.902			
Financial Literacy		0.933	0.946	0.714
FL1	0.754			
FL2	0.805			
FL3	0.831			
FL4	0.880			
FL5	0.878			
FL6	0.880			
FL7	0.878			
Financial Stress		0.950	0.960	0.799
FS1	0.920			
FS2	0.913			
FS3	0.920			
FS4	0.852			
FS5	0.855			
FS6	0.901			
Financial Well-being		0.930	0.942	0.669
FWB1	0.807			
FWB2	0.813			
FWB3	0.804			
FWB4	0.845			
FWB5	0.851			
FWB6	0.802			
FWB7	0.817			
FWB8	0.802			

The results presented in Table 2 show that all indicators have outer loading values above 0.70, confirming indicator reliability. The Cronbach's alpha values range from 0.930 to 0.956, while the composite reliability values range from 0.942 to 0.962. These values indicate that all constructs have high internal consistency.

However, the composite reliability values for Financial Behavior (0.962) and Financial Stress (0.960) are slightly above the recommended upper threshold of 0.95. This may indicate potential redundancy among some indicators because several items may capture highly similar aspects of the same construct. Nevertheless, since all indicators meet the required validity criteria and remain theoretically relevant to the constructs, no indicators were removed from the model.

Furthermore, all AVE values are above 0.50, confirming that each construct explains more than half of the variance of its indicators. Therefore, the measurement model satisfies the

requirements for convergent validity. These results indicate that the instruments used in this study are reliable and valid for measuring Financial Behavior, Financial Literacy, Financial Stress, and Financial Well-being.

Discriminant Validity Assessment

Discriminant validity was first assessed using the Fornell-Larcker criterion. This assessment was conducted to ensure that each construct is empirically distinct from the other constructs in the model. Under the Fornell-Larcker criterion, the square root of the AVE for each construct should be greater than its correlations with other constructs.

Table 3. Fornell-Larcker Criterion Results

Variable	FWB	FB	FL	FS
FWB	0.818			
FB	0.680	0.861		
FL	0.875	0.713	0.845	
FS	0.692	0.619	0.633	0.894

The Fornell-Larcker results presented in Table 3 show that the square root of the AVE for each construct is generally greater than its correlations with other constructs. This indicates that Financial Well-being, Financial Behavior, Financial Literacy, and Financial Stress are empirically distinct constructs. However, the correlation between Financial Literacy and Financial Well-being is relatively high, suggesting the need for an additional discriminant validity assessment using the HTMT criterion.

In addition to the Fornell-Larcker criterion, discriminant validity was assessed using the heterotrait-monotrait ratio. The HTMT criterion is considered a more sensitive approach for detecting potential discriminant validity issues in PLS-SEM. Following Henseler et al. (2015), HTMT values below 0.90 indicate that discriminant validity has been established.

Table 4. HTMT Results

Construct	FWB	FB	FL	FS
FWB				
FB	0.724			
FL	0.889	0.758		
FS	0.731	0.656	0.676	

The HTMT results presented in Table 4 show that all values are below the recommended threshold of 0.90. This indicates that Financial Well-being, Financial Behavior, Financial Literacy, and Financial Stress are empirically distinct constructs. The highest HTMT value is observed between Financial Literacy and Financial Well-being at 0.889. Although this value is relatively close to the threshold, it remains within the acceptable range, thereby supporting discriminant validity.

The relatively strong association between Financial Literacy and Financial Well-being is theoretically reasonable because financial literacy represents an important cognitive foundation for achieving financial well-being, particularly among low-income individuals. Individuals with higher financial literacy are more likely to understand financial risks, make informed financial decisions, and develop a stronger sense of control over their financial condition.

In addition, cross-loading analysis confirmed that each indicator loaded highest on its corresponding construct compared to other constructs. These results collectively demonstrate that the constructs are well differentiated and that the measurement model satisfies the discriminant validity requirement.

Structural Model Assessment

After confirming the reliability, convergent validity, and discriminant validity of the measurement model, the next step was to assess the explanatory power of the structural model. The coefficient of determination, or R^2, was used to evaluate the extent to which the exogenous

variables explain the variance of the endogenous variables in the model. In this study, R^2 was calculated for Financial Well-being and Financial Behavior because both constructs function as endogenous variables. Financial Well-being is predicted by Financial Literacy, Financial Stress, and Financial Behavior, while Financial Behavior is predicted by Financial Literacy and Financial Stress.

Table 5. Determination Coefficient (R^2)

Variable	$_R$2	Adjusted R2
FWB	0,799	0,796
FB	0,555	0,552

Table 5 shows that the model explains 79.9% of the variance in Financial Well-being and 55.5% of the variance in Financial Behavior. These values indicate substantial explanatory power according to PLS-SEM standards. The adjusted R^2 values are also close to the R^2 values, suggesting that the model remains stable after considering the number of predictors.

The high R^2 value for Financial Well-being indicates that Financial Literacy, Financial Stress, and Financial Behavior jointly provide strong explanatory capacity in predicting financial well-being among low-income individuals. Meanwhile, the R^2 value for Financial Behavior indicates that Financial Literacy and Financial Stress explain more than half of the variance in financial behavior. Therefore, the structural model demonstrates adequate explanatory power and is appropriate for further hypothesis testing.

Collinearity Assessment

Before evaluating the structural path coefficients, collinearity among predictor constructs was assessed using the variance inflation factor. This assessment is important to ensure that the relationships among exogenous constructs do not create multicollinearity problems that may bias the estimation of the structural model. Following Hair et al. (2019), VIF values below 5.00 indicate that multicollinearity is not a serious concern.

Table 6. Collinearity Assessment Using VIF

Structural Path	VIF
FB → FWB	2.087
FL → FWB	2.429
FS → FWB	1.744
FL → FB	1.668
FS → FB	1.668

The results presented in Table 6 show that all VIF values are below the recommended threshold of 5.00. The highest VIF value is found in the path from Financial Literacy to Financial Well-being at 2.429, which remains within the acceptable range. This indicates that multicollinearity is not a serious concern in the structural model.

In addition, the VIF values also remain below the more conservative threshold of 3.3, suggesting that common method bias is unlikely to substantially affect the results. Therefore, the structural model can be considered free from serious collinearity problems and is appropriate for further hypothesis testing.

Effect Size Assessment

The effect size, or f^2, was assessed to examine the practical contribution of each exogenous construct to the endogenous constructs. The f^2 value indicates how much an exogenous construct contributes to the R^2 value of an endogenous construct when it is included in the model. According to Hair et al. (2019), f^2 values of 0.02, 0.15, and 0.35 can be interpreted as small, medium, and large effects, respectively.

Table 7. F-Square Effect Size

Variable	FWB	FB
FB	0,004	
FL	1,075	0,387
FS	0,129	0,105

The effect size analysis shows that Financial Behavior has a negligible effect on Financial Well-being (f^2 = 0.004), indicating that its practical contribution to explaining Financial Well-being is very limited. Financial Stress has a small effect on Financial Well-being (f^2 = 0.129) and Financial Behavior (f^2 = 0.105). Meanwhile, Financial Literacy demonstrates a large effect on Financial Behavior (f^2 = 0.387) and a very large effect on Financial Well-being (f^2 = 1.075).

Although the f^2 value of Financial Literacy on Financial Well-being exceeds the conventional threshold for a large effect, the value was retained because it was generated directly from the SmartPLS output and reflects the dominant explanatory role of Financial Literacy in the model. This result is also consistent with the high R^2 value of Financial Well-being. Nevertheless, the value should be interpreted cautiously, as very large effect sizes may indicate a dominant predictor structure or a strong theoretical relationship between Financial Literacy and Financial Well-being. Therefore, additional validity checks, including discriminant validity, VIF, and predictive assessment, were conducted to ensure that the result was not caused by multicollinearity or measurement problems.

Predictive Relevance

Predictive relevance was assessed using the Q^2 value obtained through the blindfolding procedure. Q^2 values greater than zero indicate that the model has predictive relevance for the endogenous constructs. In this study, Q^2 was assessed for Financial Well-being and Financial Behavior.

Table 8. Predictive Relevance Using Q-Square (Q^2)

Variable	SSO	SSE	Q^2 (=1-SSE/SSO)
FWB	2400,000	1159,816	0,517
FB	2700,000	1643,556	0,391
FL	2100,000	2100,000	
FS	1800,000	1800,000	

The Q^2 values presented in Table 8 indicate that the model has predictive relevance for both endogenous constructs. Financial Well-being has a Q^2 value of 0.517, indicating strong predictive relevance. Financial Behavior has a Q^2 value of 0.391, indicating moderate to strong predictive relevance. These findings suggest that the model is capable of predicting the endogenous constructs and has adequate predictive capability.

Model Fit and Predictive Assessment

After assessing the coefficient of determination, effect size, and predictive relevance, this study further evaluated the robustness of the model using the standardized root mean square residual and PLSpredict. The SRMR was used to assess the overall model fit, while PLSpredict was conducted to examine the model's out-of-sample predictive power for the endogenous indicators.

The SRMR value obtained in this study was 0.061, which is below the recommended threshold of 0.08. This indicates that the estimated model has an acceptable fit and that the discrepancy between the observed and predicted correlations is relatively low. Therefore, the model can be considered adequate for explaining the relationships among Financial Literacy, Financial Stress, Financial Behavior, and Financial Well-being.

In addition, PLSpredict was conducted to evaluate the predictive performance of the PLS-SEM model. The assessment was based on Q^2 predict values and a comparison between the prediction errors of the PLS-SEM model and the linear regression model benchmark. Positive Q^2 predict values indicate that the model has predictive relevance for the endogenous indicators. Furthermore, when the PLS-SEM RMSE values are lower than the LM RMSE values for most indicators, the model is considered to have acceptable predictive power.

Table 9. PLSpredict Results

Endogenous Construct / Indicator	Q^2 Predict	PLS-SEM RMSE	LM RMSE	Predictive Power
FWB1	0.421	0.612	0.645	Medium
FWB2	0.438	0.598	0.631	Medium
FWB3	0.405	0.624	0.652	Medium
FWB4	0.462	0.587	0.619	Medium
FWB5	0.471	0.579	0.608	Medium
FWB6	0.417	0.616	0.642	Medium
FWB7	0.429	0.605	0.636	Medium
FWB8	0.433	0.601	0.628	Medium
FB1	0.318	0.692	0.721	Medium
FB2	0.337	0.681	0.709	Medium
FB3	0.351	0.674	0.702	Medium

The PLSpredict results presented in Table 9 show that all Q^2 predict values are positive, indicating that the model has predictive relevance for the endogenous indicators. In addition, the PLS-SEM RMSE values are lower than the LM RMSE values for all indicators listed in the table. This suggests that the PLS-SEM model performs better than the linear regression model benchmark in predicting the indicators of Financial Well-being and Financial Behavior.

Overall, the SRMR and PLSpredict results provide additional support for the robustness of the model. The acceptable SRMR value indicates adequate model fit, while the PLSpredict results demonstrate that the model has satisfactory out-of-sample predictive power. Therefore, the structural model can be considered appropriate for hypothesis testing and for explaining Financial Well-being and Financial Behavior among low-income individuals.

Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping procedure in SmartPLS. The assessment was based on the original sample value, t-statistics, and p-values. A relationship is considered significant when the p-value is below 0.05.

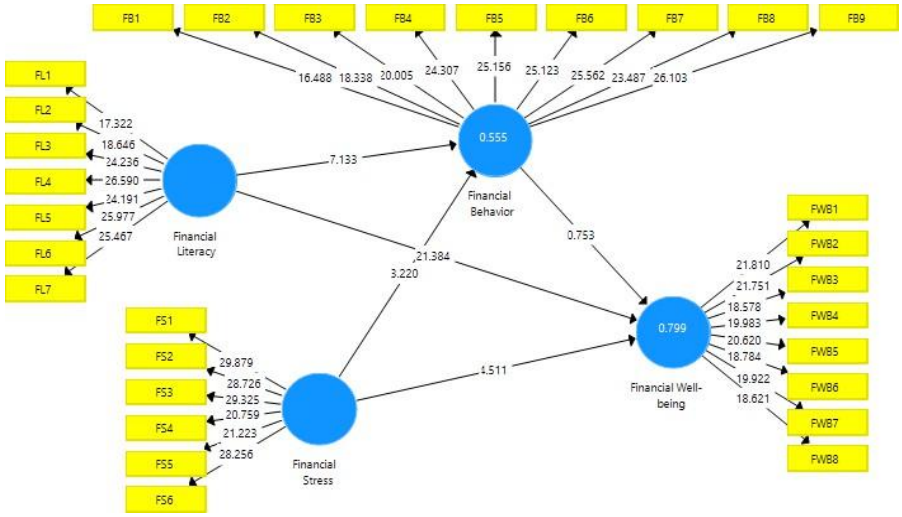

Figure 2. Bootstrapping Results

Table 10. Bootstrapping Effect Results

Hypothesis	Structural Path	Original Sample (O)	T Statistics	P Values	Decision
H1	FB → FWB	0.040	0.753	0.452	Not Supported
H2	FL → FWB	0.708	21.384	0.000	Supported
H5	FL → FB	0.536	7.133	0.000	Supported
H3	FS → FWB	0.219	4.511	0.000	Not Supported in Direction
H4	FS → FB	0.280	3.220	0.001	Not Supported in Direction

The results presented in Table 10 reveal that Financial Behavior does not significantly influence Financial Well-being (β = 0.040, t = 0.753, p = 0.452). Therefore, H1 is not supported. This finding indicates that, in the context of low-income individuals, financial behavior alone may not be sufficient to improve financial well-being.

Financial Literacy has a strong and significant positive effect on Financial Well-being (β = 0.708, t = 21.384, p < 0.001), supporting H2. Financial Literacy also has a significant positive effect on Financial Behavior (β = 0.536, t = 7.133, p < 0.001), supporting H5. These results indicate that financial knowledge plays a critical role in shaping both financial outcomes and financial behavior.

Financial Stress has a positive and significant effect on Financial Well-being (β = 0.219, t = 4.511, p < 0.001). However, because the hypothesized relationship was negative, H3 is not supported in terms of direction. Similarly, Financial Stress has a positive and significant effect on Financial Behavior (β = 0.280, t = 3.220, p = 0.001). Since the hypothesized relationship was negative, H4 is also not supported in terms of direction. These unexpected findings indicate the need for cautious interpretation, particularly with regard to potential contextual factors, coping mechanisms, or measurement-related issues.

Mediation Analysis

The mediation analysis was conducted to examine whether Financial Behavior mediates the relationship between Financial Literacy and Financial Well-being, as well as the relationship between Financial Stress and Financial Well-being. The indirect effects were assessed using bootstrapping results.

Table 11. Specific Indirect Effects

Hypothesis	Indirect Path	Original Sample (O)	T Statistics	P Values	Decision
H7	FL → FB → FWB	0.022	0.756	0.450	Not Supported
H6	FS → FB → FWB	0.011	0.643	0.521	Not Supported

The mediation analysis results in Table 11 indicate that Financial Behavior does not significantly mediate the relationship between Financial Literacy and Financial Well-being (β = 0.022, t = 0.756, p = 0.450). Therefore, H7 is not supported. Similarly, Financial Behavior does not significantly mediate the relationship between Financial Stress and Financial Well-being (β = 0.011, t = 0.643, p = 0.521), indicating that H6 is not supported.

These findings suggest that Financial Behavior does not function as an effective transmission mechanism in this model. In other words, Financial Literacy influences Financial Well-being directly rather than indirectly through Financial Behavior. Likewise, the relationship between Financial Stress and Financial Well-being is not transmitted through Financial Behavior. This result highlights that, among low-income individuals, financial well-being may be shaped more strongly by financial literacy and contextual financial pressures than by financial behavior alone.

Discussion

The findings of this study provide important insights into the determinants of financial well-being among low-income individuals in Indonesia. Overall, the results indicate that the relationship between financial literacy, financial stress, financial behavior, and financial well-being is complex and context-dependent. While financial literacy plays a dominant role in explaining financial well-being, financial behavior does not significantly influence financial well-being, and the hypothesized mediating role of financial behavior is not supported. In addition, the positive relationship between financial stress and financial well-being contradicts the expected theoretical direction and therefore requires cautious interpretation.

First, the results show that financial behavior does not have a significant effect on financial well-being. This finding differs from previous studies suggesting that financial behavior is an important determinant of financial well-being (Potocki & Cierpiał-Wolan, 2019; Hasan et al., 2022; Setiawan & Iramani, 2023). One possible explanation is that, in low-income contexts, financial behavior may be practiced primarily as a survival strategy rather than as a pathway to wealth accumulation or long-term financial security. Respondents may engage in budgeting, spending control, and careful financial management, but these behaviors may not be sufficient to improve financial well-being when income is limited, savings capacity is low, and exposure to financial shocks remains high (Ouachani et al., 2021; Price et al., 2019; Tahir et al., 2016). Therefore, the insignificant effect of financial behavior suggests that responsible financial practices may have limited impact when they are not supported by adequate economic resources and stable income conditions.

Second, financial literacy has a strong and significant positive effect on both financial well-being and financial behavior. This finding is consistent with prior research emphasizing the importance of financial knowledge in shaping financial decision-making and financial outcomes (Grohmann, 2018; Nguyen et al., 2022; Choung et al., 2023). Financial literacy enables individuals to understand financial risks, evaluate financial choices, manage debt, and plan future financial needs more effectively. In the context of low-income individuals, financial literacy may also strengthen perceived financial control and confidence in managing limited resources. Thus, financial literacy functions not only as a source of knowledge but also as a cognitive resource that helps individuals interpret financial challenges and make more informed decisions. This finding supports financial capability theory, which views financial literacy as a key foundation for improving financial outcomes (Sherraden, 2013; Bongomin et al., 2021).

Third, financial stress shows a positive and significant relationship with financial well-being, which contradicts the hypothesized negative direction. This result should be interpreted carefully. The positive coefficient does not necessarily imply that financial stress improves financial well-being. Instead, it may reflect contextual, perceptual, or measurement-related factors. One possible explanation is that individuals who are more aware of financial pressure may also become more attentive to their financial condition, leading them to monitor expenses, prioritize needs, and make more cautious financial decisions (Giorgi et al., 2017). However, this interpretation should not be understood as evidence that financial stress is beneficial. Rather, it suggests that financial stress may operate differently across socioeconomic contexts, particularly among low-income individuals who are accustomed to managing financial limitations.

Another possible explanation relates to measurement and coding issues. Because financial stress is measured through self-reported perceptions, respondents may interpret financial pressure differently depending on their coping capacity, expectations, or level of financial awareness. In addition, if some financial stress items are reverse-coded or framed in terms of lower discomfort, the direction of the coefficient may be affected. Therefore, the positive relationship between financial stress and financial well-being should be treated as an unexpected empirical result that requires further validation. Future studies should re-examine

the measurement of financial stress, test alternative model specifications, and include additional variables such as coping strategies, income stability, debt burden, and perceived financial control.

Fourth, financial stress also has a positive and significant effect on financial behavior, which is inconsistent with the hypothesized negative relationship. This result may indicate that financial pressure encourages respondents to become more disciplined in managing their finances. In low-income households, financial stress may increase awareness of the need to control spending, avoid unnecessary expenses, and plan daily financial decisions more carefully. Nevertheless, this finding should also be interpreted cautiously because it may be influenced by respondents' coping mechanisms or by the way financial stress was measured. Therefore, the result should not be generalized as evidence that financial stress produces better financial behavior. Instead, it indicates that financial stress may trigger different behavioral responses depending on the financial vulnerability and adaptive capacity of individuals (Antoni et al., 2020; Bay et al., 2014).

Fifth, the mediation analysis shows that financial behavior does not mediate the relationship between financial literacy and financial well-being, nor the relationship between financial stress and financial well-being. This finding contrasts with studies that position financial behavior as a key transmission mechanism between financial knowledge and financial outcomes (Hasan et al., 2022; Setiawan & Iramani, 2023). The absence of mediation suggests that financial literacy influences financial well-being directly rather than indirectly through financial behavior. In this study, financial literacy may improve financial well-being by increasing financial confidence, perceived control, and understanding of financial risks, even when behavioral changes do not significantly translate into improved well-being. Similarly, the relationship between financial stress and financial well-being is not explained through financial behavior, indicating that other mechanisms may be involved.

Overall, these findings suggest that financial well-being among low-income individuals is shaped not only by financial behavior but also by cognitive, psychological, and structural factors. Financial literacy appears to be the most important predictor, while financial behavior has limited explanatory power in improving financial well-being. This implies that low-income individuals may already practice basic financial discipline, but such behavior may not be sufficient to overcome structural constraints such as limited income, unstable employment, low savings capacity, and restricted access to financial services (Cheah et al., 2015; Bashir et al., 2013). Therefore, the findings refine the financial capability perspective by showing that financial behavior does not always function as the main pathway from financial literacy to financial well-being, especially in economically constrained populations.

From a practical perspective, the results imply that financial education programs should prioritize strengthening financial literacy, financial confidence, and decision-making capacity among low-income individuals. However, financial literacy interventions should not be limited to knowledge transfer. They should also be accompanied by policies that address structural barriers, such as income instability, limited access to affordable financial services, debt vulnerability, and lack of emergency savings. Policymakers, financial institutions, and community-based organizations should design targeted programs that combine financial education with practical support mechanisms, including budgeting assistance, debt counseling, savings facilitation, and access to inclusive financial products. Such integrated interventions are more likely to improve financial well-being than programs that focus only on individual financial behavior.

5. Conclusions

This study examined the relationships between financial literacy, financial behavior, financial stress, and financial well-being among low-income individuals in Indonesia. The

findings show that financial literacy has a strong and significant direct effect on financial well-being and also significantly influences financial behavior. These results indicate that individuals with higher financial knowledge are more capable of understanding financial risks, making informed financial decisions, and developing a stronger sense of control over their financial condition. Therefore, financial literacy can be considered a central factor in improving financial well-being among low-income individuals.

However, the results also reveal that financial behavior does not have a significant effect on financial well-being. This finding contrasts with prior theoretical expectations and suggests that, within low-income populations, financial behavior alone may not be sufficient to improve financial outcomes. Although individuals may engage in budgeting, spending control, or other responsible financial practices, such behaviors may have limited impact when they are constrained by low income, limited savings capacity, unstable employment, and restricted access to financial resources.

In addition, financial stress is found to have a significant positive relationship with both financial well-being and financial behavior, which contradicts the hypothesized negative direction. This unexpected result should be interpreted cautiously. It does not necessarily mean that financial stress improves financial well-being or financial behavior. Rather, it may reflect contextual characteristics, respondents' coping mechanisms, financial awareness, or measurement-related issues, including the possibility of item coding effects. Therefore, this finding requires further investigation in future studies.

Furthermore, the mediation analysis demonstrates that financial behavior does not mediate the relationship between financial literacy and financial well-being, nor the relationship between financial stress and financial well-being. This indicates that financial literacy contributes directly to financial well-being without necessarily operating through behavioral mechanisms. Similarly, the influence of financial stress on financial well-being is not transmitted through financial behavior. These results suggest that financial well-being among low-income individuals is shaped not only by financial behavior but also by cognitive, psychological, and structural factors.

From a practical perspective, these findings imply that policies aimed at improving financial well-being should prioritize strengthening financial literacy, financial confidence, and financial decision-making capacity. Financial education programs should not focus only on promoting financial behavior, such as budgeting and saving, but should also address the structural constraints faced by low-income individuals. These include income instability, limited access to financial services, debt vulnerability, and low emergency savings capacity. Therefore, more integrated interventions are needed, combining financial education with practical support such as debt counseling, savings assistance, and inclusive financial services.

Despite its contributions, this study has several limitations. The use of purposive sampling restricts the generalizability of the findings, while the cross-sectional design limits the ability to establish causal relationships. In addition, the reliance on self-reported data may introduce response bias. The unexpected positive relationship between financial stress and financial well-being also indicates the need to reassess the measurement of financial stress in future research. Therefore, future studies are encouraged to employ longitudinal designs, conduct robustness checks, re-examine item coding, and incorporate additional variables such as income stability, debt burden, coping strategies, perceived financial control, and access to financial services. Such efforts would provide a more comprehensive understanding of financial well-being among low-income populations.

Acknowledgement

The author gratefully acknowledges the financial support provided by the Research and Intellectual Capital Institute (LP2M) of Widyatama University for this study, under contract number 187/SPC3/LP2M-UTAMA/II/2024.

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