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Beyond Financial Awareness: Financial Attitude as an Indirect Link to MSME Financial Record-Keeping Practices

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ABSTRACT

Purpose - This study examines the relationships among financial awareness, financial attitude, and financial record-keeping practices among micro, small, and medium enterprises (MSMEs). It specifically investigates the indirect association between financial awareness and financial record keeping through financial attitude.
Design/methodology/approach - The study employed a quantitative cross-sectional design using survey data from 150 respondents involved in financial management or business decision making in trading and culinary MSMEs in East Priangan, West Java, Indonesia. Respondents were selected through purposive sampling, and the data were analyzed using PLS-SEM.
Finding/Results - Financial awareness was positively and significantly associated with both financial attitude and self-reported financial record keeping. Financial attitude was also positively associated with self-reported financial record keeping. In addition, the indirect association between financial awareness and financial record keeping through financial attitude was statistically significant, indicating a pattern consistent with complementary mediation. These findings suggest that greater financial awareness is associated with respondents reporting more consistent record-keeping practices, with financial attitude forming an important indirect link within the proposed model.
Originality/Value - This study extends the financial behavior literature by distinguishing financial awareness from financial attitude and examining their relationships with a specific and recurring financial practice rather than broad financial behavior. The findings show that an indirect association through financial attitude remains evident when the behavioral outcome is narrowed to self-reported financial record keeping. However, given the cross-sectional design, this pattern is interpreted as a theoretically specified structural association rather than evidence of temporal or causal ordering.

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1. Introduction

Micro, small, and medium enterprises (MSMEs) depend on financial information to monitor business conditions and support day-to-day decisions, yet consistent financial record keeping remains a recurring challenge. Jonck and Nwosu (2022) found that 79.4% of informal sector SMEs in their South African sample maintained no financial records, while Hoxha et al. (2023) reported that approximately half of surveyed vineyard farmers in Kosovo never or rarely recorded income and expenses**.** Similar conditions have been documented in Indonesia. Rawun and Tumilaar (2019) identified limited and incomplete recording among MSMEs in Manado, while Purwati et al. (2024) reported manual and inconsistent practices among Batik MSMEs. In Garut, West Java, some MSMEs did not systematically record financial transactions because the process was perceived as complicated (Cahyaningsih & Rokayah, 2024). Other evidence shows that incomplete records may limit information about profitability, financial position, and cash flow (Idrus & Rastina, 2026). Although practices vary across settings, Miguel et al. (2025), for example, reported relatively high bookkeeping practices among SMEs in the Philippines. Nevertheless, the broader evidence shows that systematic financial recording cannot be assumed across small businesses.

Financial records are more than administrative documentation, they provide information for planning, monitoring, decision making, and business evaluation (Adela et al., 2024; Jonck & Nwosu, 2022). Mdoda and Nontu (2026) further show that maintaining records is associated with productivity, income, and business resilience among smallholders. Yet weak record keeping cannot be explained only by the absence of accounting systems. Businesses may consider formal reporting unnecessary, complicated, or disproportionate to the size of their businesses (Perdana et al., 2024; Rawun & Tumilaar, 2019). Limited accounting training, knowledge, time, and resources also constrain financial practices (Abdull Rahman et al., 2025; Hassan et al., 2026). Chukwuka et al. (2026) similarly identify limited financial literacy and awareness as barriers to systematic documentation. Training-oriented evidence reinforces this point, greater understanding of accounting and financial information has been accompanied by improvements in transaction recording and related financial practices (Ariani et al., 2024; Musyaffi et al., 2025). Thus, the problem involves a cognition-practice gap, recognizing or understanding financial matters does not automatically ensure their translation into routine practice, a pattern also observed outside MSMEs (Krupa, 2025).

Financial awareness is particularly relevant to this gap, but its conceptual use remains inconsistent. Szikszai et al. (2024) incorporate knowledge, attitude, and behavior into an overall financial awareness construct, whereas Tohar and Akron (2025) distinguish financial awareness, financial knowledge, and financial attitude as separate financial cognitions. Tang (2024) likewise emphasizes awareness as recognition of financial matters, attention to financial issues, and motivation to acquire relevant knowledge and skills. The findings further indicate that financial awareness captures information not fully represented by conventional financial knowledge measures. Related evidence from Indonesian MSMEs shows that financial awareness is associated with financial capability and financial behavior (Fahlevi et al., 2025), while Ardhiani and Panjaitan (2023) find that awareness and attitude have separate behavioral relevance. Enterprise-level research also recognizes financial awareness as relevant to financial decision-making conditions (Csiszárik-Kocsir & Molnár, 2025). A related but narrower literature on financial self-awareness similarly links accurate awareness of one's financial condition with financial decisions (Chowdhry & Dholakia, 2020).

Behavioral Finance Theory provides a broader explanation for why cognition alone may not be sufficient to generate financial practice. Financial behavior reflects not only cognitive processing but also psychological and evaluative responses. Aoun et al. (2026) conceptualize financial attitude as an evaluative mechanism through which financial cognition is translated into behavior. Empirical studies likewise show that attitude can mediate the relationship between financial cognition and subsequent financial behavior or capability (Amonhaemanon & Vora-Sitta, 2020; Zaimovic et al., 2025). More directly, Muat et al. (2025) place financial awareness upstream of financial attitude and behavior in a serial pathway, while Rahayu et al. (2023) find that financial attitude is positively associated with financial management behavior among Indonesian MSMEs. These findings suggest that awareness may become behaviorally meaningful partly through the way individuals evaluate financial management.
Existing evidence, however, remains fragmented. Studies of financial record keeping primarily document its importance, weaknesses, and practical barriers, whereas studies of financial awareness and attitude generally examine broad financial behavior, financial capability, investment, or financial well-being. Prior research already provides evidence that financial awareness, financial attitude, and financial behavior can operate within sequential relationships. Muat et al. (2025), for example, position financial awareness upstream of financial attitude and financial behavior, while Aoun et al. (2026) demonstrate that financial attitude mediates the relationship between financial literacy and financial behavior. Therefore, the novelty of the present study does not lie in establishing an attitudinal pathway itself. Rather, the unresolved question is whether such an indirect association is also evident when the behavioral outcome is narrowed to Financial Record Keeping, a specific and recurring operational financial practice among MSMEs. Unlike broad financial behavior, Financial Record Keeping represents a more narrowly defined practice involving the repeated documentation and updating of business financial transactions. The present study therefore examines whether the relationship between Financial Awareness and Financial Attitude extends to this specific operational practice while maintaining a conceptual distinction between awareness as recognition and attention and attitude as evaluative orientation. It therefore remains unclear whether financial awareness is associated with MSME record keeping only directly or whether financial attitude also serves as an indirect pathway. Accordingly, this study examines the relationships among financial awareness, financial attitude, and financial record keeping among MSMEs in East Priangan, Indonesia. East Priangan was selected because it represents an important MSME concentration in West Java. Official data from the West Java Office of Cooperatives and Small Enterprises indicate that the six regencies and municipalities comprising the East Priangan-Pangandaran development area account for approximately 350,722 MSMEs, or about 21.6% of the total MSMEs recorded in West Java (Department of Cooperatives and Small Enterprises of West Java Province, 2024).

2. Literature Review & Hypothesis Development

2.1 Behavioral Finance Perspective

Behavioral Finance Theory (BFT) developed partly in response to the limitations of traditional finance in explaining actual financial decisions. It recognizes that financial choices are shaped by psychological and cognitive processes rather than complete rationality alone, with Prospect Theory representing one of its foundational developments (Prosad et al., 2015). In a contemporary behavioral finance model, Aoun et al. (2026) distinguish cognitive financial resources from financial attitude as a psychological and evaluative orientation associated with

financial behavior. Following this perspective, the present study conceptualizes Financial Awareness as a cognitive financial orientation, Financial Attitude as an evaluative orientation, and Financial Record Keeping as a behavioral financial practice.

Behavioral Finance remains the primary theoretical framework of this study because it provides a broad explanation of how cognitive and psychological factors are associated with financial behavior. The Theory of Planned Behavior (Ajzen, 1991) is used only as a complementary rationale for the evaluative role of Financial Attitude. In TPB, attitude toward a behavior contributes to behavioral intention, while intention, together with perceived behavioral control, contributes to actual behavior. The present study does not test the full TPB mechanism because behavioral intention, subjective norms, and perceived behavioral control are not included in the model. Rather, TPB is used to support the narrower proposition that favorable evaluations of financial management practices may be relevant to financial behavior. Related empirical evidence also shows that Financial Attitude is associated with or mediates relationships between financial cognition and financial behavior (Coskun & Dalziel, 2020; Pranitasari et al., 2026).

2.2 Financial Awareness and Financial Attitude

Financial awareness and financial attitude are related but conceptually distinct. Tohar and Akron (2025) distinguish awareness from knowledge and attitude, showing that each represents a separate financial cognition. More direct evidence for a sequential relationship is provided by Muat et al. (2025), who position financial awareness upstream of financial attitude in explaining financial well-being through subsequent financial behavior. Greater attention to and recognition of financial matters may therefore shape the way individuals evaluate financial control, spending, saving, and future financial management.

H1: Financial awareness is positively associated with financial attitude among MSMEs.

2.3 Financial Awareness and Financial Record Keeping

Financial awareness may also have direct behavioral relevance. Tang (2024) finds that greater financial awareness is associated with more responsible financial outcomes in education savings, credit management, and retirement saving. Fahlevi et al. (2025) likewise show behavioral relevance of financial awareness among Indonesian agro-industrial MSMEs. In record keeping contexts, some small businesses fail to maintain records because they do not perceive a need for them or do not recognize their relevance (Jonck & Nwosu, 2022). Similar barriers have been reported among Indonesian MSMEs (Rawun & Tumilaar, 2019) and in reviews of SME financial practices (Chukwuka et al., 2026). Recognition of the importance of monitoring business finances should therefore provide a practical reason for maintaining records.

H2: Financial awareness is positively associated with financial record keeping among MSMEs.

2.4 Financial Attitude and Financial Record Keeping

Financial attitude reflects the evaluative orientation with which individuals approach financial management. A favorable financial attitude may support disciplined practices involving budgeting, expenditure control, saving, and monitoring of financial conditions. Aoun et al. (2026) find that financial attitude is positively associated with financial behavior, while Rahayu et al. (2023) report a significant relationship between financial attitude and financial management behavior among Indonesian MSMEs. Qualitative evidence also suggests that viewing record keeping as an administrative burden rather than a strategic necessity can weaken recording practices (Abdull Rahman et al., 2025). Thus, a more favorable financial attitude should be associated with more consistent financial documentation. Oktaviani et al.

(2023) found that financial attitude was positively associated with financial behavior among embroidery MSMEs in Tasikmalaya. However, the study examined financial behavior broadly, leaving open whether financial attitude also translates into a specific and recurring financial practice such as record keeping.

H3: Financial attitude is positively associated with financial record keeping among MSMEs.

2.5 Indirect Association Through Financial Attitude

Financial Awareness may be associated with financial practice both directly and indirectly through an evaluative pathway involving Financial Attitude. Muat et al. (2025) demonstrate a serial mechanism linking financial awareness, financial attitude, financial behavior, and financial well-being. Aoun et al. (2026) similarly show that financial attitude mediates the relationship between financial literacy and financial behavior. Evidence from Thailand shows an indirect relationship between financial literacy and financial capability through attitude (Amonhaemanon & Vora-Sitta, 2020), while Zaimovic et al. (2025) demonstrate a mediating role of digital financial attitude between digital financial knowledge and behavior. Collectively, these findings support the proposition that financial cognition may be indirectly associated with financial behavior through Financial Attitude.

H4: The indirect association between Financial Awareness and Financial Record Keeping through Financial Attitude is positive and significant.

To clarify the theoretical positioning of the present study, Table 1 compares the current model with the closest prior studies in terms of the focal constructs, behavioral outcomes, and remaining research gap.

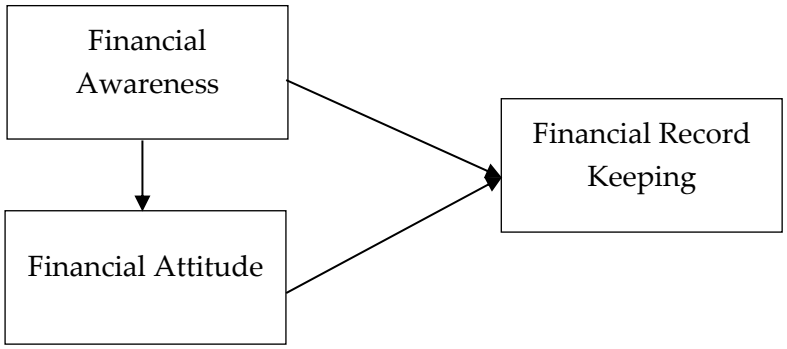
Table 1. Positioning of the Present Study Relative to Closely Related Research

Study	Main Relationship	Outcome	Distinction from Present Study
Muat et al. (2025)	Financial awareness, financial attitude, and financial behavior within a serial pathway	Financial behavior and financial well-being	Does not focus on Financial Record Keeping as a specific MSME operational practice
Aoun et al. (2026)	Financial attitude mediates the relationship between financial literacy and financial behavior	Broad financial behavior	Does not model Financial Awareness as the focal antecedent or examine record keeping
Tohar & Akron (2025)	Financial awareness, financial attitude, and financial knowledge as distinct financial cognitions	Financial behavior	Distinguishes awareness and attitude but does not examine their indirect association with Financial Record Keeping
Present Study	Financial Awareness is associated with Financial Record Keeping both	Specific recurring record-keeping practice	Examines whether the awareness–attitude pathway remains evident

Study	Main Relationship	Outcome	Distinction from Present Study
	directly and indirectly through Financial Attitude		when the behavioral outcome is narrowed to Financial Record Keeping among MSMEs

As shown in Table 1, the present study does not claim novelty from the existence of an attitudinal pathway itself. Rather, it extends prior models by examining whether this indirect association is also evident when the outcome is narrowed to Financial Record Keeping as a specific and recurring operational financial practice among MSMEs.

Figure 1. Research Model



3. Methodology

This study employed a quantitative cross-sectional survey of MSMEs in East Priangan, West Java, Indonesia. Respondents were selected purposively from trading and culinary MSMEs and were eligible if they were either business owners or employees directly involved in financial management or business decision making. Data were collected through a Google Forms questionnaire distributed both during direct visits to MSMEs and electronically through WhatsApp networks. Because the questionnaire was distributed through electronic channels, the total number of businesses or individuals approached was not systematically recorded, and a response rate could therefore not be calculated. A total of 150 responses were obtained, and all were retained for analysis because no responses were excluded. Of the 150 respondents, 135 (90.0%) were business owners and 15 (10.0%) were employees directly involved in financial management or business decision making. Financial Awareness and Financial Attitude were measured as individual-level respondent characteristics, whereas Financial Record Keeping captured respondents' reports of record-keeping practices within the MSME in which they were involved. Accordingly, the findings are interpreted as reflecting respondent-reported financial practices rather than independently verified enterprise-level characteristics.

Sample adequacy was assessed using Kock and Hadaya (2018) inverse square root method for PLS-SEM, indicating that 150 respondents were sufficient to detect path coefficients of approximately 0.203 or greater at α = 0.05 and power = 0.80. Thus, the final sample was

considered adequate for detecting structural relationships of approximately this magnitude or greater.

Ethical approval for this study was obtained from the Health Research Ethics Committee of Universitas Bakti Tunas Husada Tasikmalaya (Approval No. 446-01/E.01/KEPK-BTH/VI/2026) prior to data collection. Before completing the questionnaire, respondents were provided with an informed consent statement. Participation was entirely voluntary, and respondents were informed that their responses would be used solely for research purposes and treated confidentially. The survey was not anonymous, as identifying information, including the business name and selected respondent characteristics, was collected for respondent identification. Several procedural measures were also applied during data collection to reduce potential common-method variance. The items measuring Financial Awareness, Financial Attitude, and Financial Record Keeping were presented in separate sections of the online questionnaire to provide a clear structure and help minimize potential response bias.

The study focused on trading and culinary MSMEs because these sectors commonly involve frequent operational transactions, making financial record keeping especially relevant to routine business management. The respondent characteristics are presented in Table 2.

Table 2. Respondent Characteristics

Variable	Category	N	%
Gender	Female	78	52
	Male	72	48
Sectors	Trading	87	58
	Culinary	63	42
Respondent Role	Owner	135	90
	Employee	15	10
Business Age	1-3 years	55	36.7
	4-5 years	31	20.7
	>5 years	64	42.6
Respondent's Age	<20 years	1	0.7
	20 - 30 years	51	34
	31 - 40 years	57	38
	>40 years	41	27.3
Location	Tasikmalaya City	50	33.3
	Tasikmalaya Regency	43	28.7
	Ciamis	26	17.3

Pangandaran	6	4
Banjar	5	3.3
Garut	20	13.4

Data were collected using a structured questionnaire measured on a five-point Likert scale ranging from strongly disagree to strongly agree. Financial Awareness was initially measured using nine items developed by the authors based on the dimensions identified by Fahlevi et al. (2025). The construct refers to respondents' recognition of and attention to relevant business financial matters. The items covered expenditure evaluation, purchase priorities, financial obligations, financial information, and financial issue discussion. Accordingly, financial awareness captured the extent to which respondents were aware of and attentive to these financial matters, rather than how they evaluated or actually carried out the related financial practices. Because several Financial Awareness items contained wording referring to the "importance" of financial matters or practices, an additional item-level conceptual audit was conducted to distinguish recognition and attention from explicit evaluative judgments. As a sensitivity analysis, an alternative Financial Awareness specification was estimated using only the four items that reflected attention without explicit evaluative wording (FAW2, FAW4, FAW6, and FAW8). The results of this sensitivity analysis are reported in the Measurement Model Assessment and Appendix Table A3

Financial Attitude was measured using eight items developed by the authors based on the dimensions identified by Ratnawati et al. (2022). The construct refers to respondents' evaluative orientation toward financial management practices, particularly the extent to which they viewed such practices as important, necessary, or beneficial. The items covered expenditure control, future-oriented financial management, budgeting, and reserve funds. Accordingly, Financial Attitude captured respondents' judgments and beliefs about financial practices rather than their awareness of those practices or their actual implementation.

Financial Record Keeping was measured using ten items developed by the authors based on the dimensions identified by Jonck and Nwosu (2022) and Chukwuka et al. (2026). In contrast to Financial Awareness and Financial Attitude, this construct captured respondents' self-reported financial record-keeping practices. The items covered the recording of cash and digital sales transactions, business purchases and operating expenses, cash inflows and outflows, separation of business and personal financial records, and regular and timely updating of records. Two items referring to manual and digital recording media were excluded from the final reflective specification because they described the mode of recording rather than the extent of record-keeping practice. Thus, the retained items focused on reported record-keeping practices rather than respondents' recognition of or attitudes toward financial management. To provide greater transparency regarding the measurement of each construct, Table 3 presents the measurement constructs, indicators, and item wording.

The questionnaire items were developed by the authors with reference to conceptual dimensions identified in previous studies, rather than by directly adopting the wording of existing scales. These dimensions served as the basis for formulating items that were relevant to the financial management practices of trading and culinary MSMEs. The questionnaire was

initially prepared in Indonesian. The English wording presented in the manuscript was prepared subsequently for publication purposes.

Accordingly, the measures used in this study should be regarded as study-specific operationalizations of Financial Awareness, Financial Attitude, and Financial Record Keeping rather than as fully validated scales. Although their statistical performance was evaluated in the present sample, no formal pre-survey content-validation procedures were conducted.

Data were analyzed using SmartPLS 4.1.1.4. All constructs were specified reflectively, with their indicators treated as manifestations of the underlying cognitive, evaluative, and record-keeping orientations. The measurement model was assessed using indicator loadings, Cronbach's alpha, rho_A, composite reliability, AVE, and HTMT. Structural model assessment included inner-model VIF, R^2, and f^2. Direct and indirect associations were tested using 5,000 bootstrap subsamples, two-tailed tests at the 5% significance level, and percentile confidence intervals. Predictive performance was assessed using PLSpredict with 10-fold cross-validation and 10 repetitions. Potential common-method bias was examined using full-collinearity VIF, with values below 3.3 interpreted as indicating that severe common-method contamination was not detected rather than that common-method bias was absent (Kock, 2015).

Table 3. Measurement Constructs, Indicators, and Item Wording

Construct	Indicator	Code	Item Wording
Financial Awareness	Business Expenditure Evaluation	FAW1	I recognize the importance of regularly evaluating business expenditures.
		FAW2	I pay attention to whether business expenditures are appropriate to the financial condition of the business.
	Business Purchase Planning	FAW3	I recognize the importance of making a list of business needs before making purchases.
		FAW4	I pay attention to the priority of business needs before making purchases.
	Financial Obligations	FAW5	I recognize the importance of knowing the amount of business debt.
		FAW6	I pay attention to the due dates of business debt.
	Financial Information Seeking	FAW7	I recognize the importance of seeking information about business financial management.
		FAW8	I pay attention to information about digital payments related to business finances.
	Financial Issue Discussion	FAW9	I recognize the importance of discussing financial issues when facing business financial problems.
Financial Attitude	Expenditure Control	FAT1	I consider controlling business expenditures important.
		FAT2	I consider it necessary to avoid non-urgent business expenditures.
	Future Financial Management	FAT3	I consider current financial management important for the future sustainability of my business.

Construct	Indicator	Code	Item Wording
		FAT4	I believe that business financial decisions should consider their long-term consequences.
	Monthly Budgeting	FAT5	I consider preparing a monthly budget important for my business.
		FAT6	I believe that my business needs a monthly budget even when its income fluctuates.
	Reserve Funds	FAT7	I consider it important to set aside part of business income as reserve funds.
		FAT8	I believe that regularly setting aside funds helps the business deal with unexpected needs.
Financial Record Keeping	Sales Transaction Recording	FRK1	I record business sales transactions made in cash.
		FRK2	I record business sales transactions made through digital payments.
	Business Expense Recording	FRK3	I record expenditures for purchasing business needs.
		FRK4	I record business operating expenses.
	Cash Inflow and Outflow Recording	FRK5	I record cash inflows from my business activities.
		FRK6	I record cash outflows from my business activities.
	Separation of Business and Personal Records	FRK7	I separate business financial records from personal financial records.
		FRK8	I ensure that business financial records contain only transactions related to the business.
	Regular Record Updating	FRK9	I regularly update business financial records.
		FRK10	I record business transactions immediately after they occur.

4. Result and Discussion

4.1 Measurement Model Assessment

All indicator loadings exceeded 0.70. Financial Awareness loadings ranged from 0.746 to 0.904, Financial Attitude from 0.820 to 0.885, and Financial Record Keeping from 0.773 to 0.905. AVE values exceeded 0.50, while Cronbach's alpha and composite reliability values indicated high internal consistency.

Table 4. Convergent Validity and Reliability

Construct	Loading Range	Cronbach's α	rho_A	CR	AVE
Financial Awareness	0.746 - 0.904	0.948	0.949	0.956	0.707
Financial Attitude	0.820 - 0.885	0.947	0.949	0.956	0.731
Financial Record Keeping	0.773 - 0.905	0.959	0.960	0.965	0.732

The high internal consistency coefficients were interpreted cautiously because very high reliability may also reflect similarity among some indicators. Accordingly, item retention was not based on reliability coefficients alone. An additional item-level conceptual audit and a restricted Financial Awareness sensitivity analysis were conducted during revision to assess whether the substantive findings depended on potentially overlapping item wording.

Discriminant validity was also supported. All HTMT values were below 0.85, and none of the confidence intervals included 1.00, indicating that Financial Awareness and Financial Attitude, although related, remained empirically distinct.

Table 5. HTMT Assessment

Construct Pair	HTMT	Confidence Interval
Financial Awareness - Financial Attitude	0.766	0.653- 0.868
Financial Record Keeping - Financial Attitude	0.790	0.693 - 0.877
Financial Record Keeping - Financial Awareness	0.759	0.630 - 0.872

Overall, the results confirmed adequate indicator reliability, convergent validity, discriminant validity, and internal consistency, supporting further evaluation of the structural model. As an additional sensitivity analysis, Financial Awareness was re-estimated using only the four items that reflected attention without explicit evaluative wording (FAW2, FAW4, FAW6, and FAW8). The restricted specification retained satisfactory reliability and convergent validity (α = 0.897, rho_A = 0.898, CR = 0.929, AVE = 0.765). The HTMT value between Financial Awareness and Financial Attitude was 0.759, and all direct and indirect structural associations remained statistically significant. These results indicate that the substantive conclusions remained consistent under the more restrictive Financial Awareness specification. This sensitivity analysis was conducted only to assess robustness to potentially overlapping item wording and should not be interpreted as establishing the content validity of the original nine-item Financial Awareness measure. Detailed sensitivity results are presented in Appendix Table A3.

4.2 Structural Model Assessment

Inner-model collinearity assessment showed VIF values ranging from 1.000 to 2.127, indicating no critical collinearity among the predictor constructs. The model explained 53.0% of the variance in Financial Attitude (R^2 = 0.530; adjusted R^2 = 0.527) and 63.6% of the variance in self-reported Financial Record Keeping (R^2 = 0.636; adjusted R^2 = 0.631). The latter should be interpreted as explanatory power within the present self-report model rather than as variance explained in independently verified bookkeeping quality, completeness, or accounting compliance. Effect size assessment indicated a large effect of Financial Awareness on Financial Attitude (f^2 = 1.127), while Financial Awareness (f^2 = 0.180) and Financial Attitude (f^2 = 0.302) showed moderate effects on self-reported Financial Record Keeping.

At the indicator level, all Q^2predict values were positive, and the PLS-SEM RMSE values were lower than the corresponding linear-model RMSE values for all endogenous indicators. The MAE results were slightly mixed for a small number of indicators. Overall, these findings indicate consistent out-of-sample predictive performance relative to the linear-model benchmark. Detailed indicator-level results are presented in Appendix Table A1.

Potential common-method bias was further assessed using full-collinearity VIF calculated separately from the latent variable scores. The resulting values ranged from 2.511 to 2.769, all below the 3.3 diagnostic threshold, indicating that severe common-method contamination was not detected. However, these results cannot rule out other sources of common-method bias, including social desirability and consistency motives, because the predictor, mediator, and outcome variables were collected from the same respondents using the same self-report instrument.

As an additional sensitivity analysis, respondent role (owner = 1; employee = 0) was included as a control variable for Financial Attitude and Financial Record Keeping. Respondent role was not significantly associated with Financial Attitude ($\beta = -0.011$, $p = .929$) or Financial Record Keeping ($\beta = 0.196$, $p = .124$). The main structural associations remained virtually unchanged: Financial Awareness → Financial Attitude ($\beta = 0.728$, $p < .001$), Financial Awareness → Financial Record Keeping ($\beta = 0.372$, $p = .001$), and Financial Attitude → Financial Record Keeping ($\beta = 0.484$, $p < .001$). These results indicate that the substantive conclusions remained stable after accounting for respondent role.

4.3 Hypothesis and Mediation Testing

Bootstrapping results showed that all hypothesized relationships were positive and statistically significant. Financial Awareness was positively associated with Financial Attitude ($p < 0.001$) and Financial Record Keeping ($p = 0.001$). Financial Attitude was also positively associated with Financial Record Keeping ($p < 0.001$). The indirect effect of Financial Awareness on Financial Record Keeping through Financial Attitude was also significant ($p < 0.001$).

Table 6. Structural Model, Effect Size and Mediation Results

Hypothesis	Relationship	β	95% CI	F^2	t	p	Result
H1	Financial Awareness → Financial Attitude	0.728	(0.626-0.829)	1.127	14.102	<0.001	Supported
H2	Financial Awareness → Financial Record Keeping	0.374	(0.155-0.593)	0.180	3.311	0.001	Supported
H3	Financial Attitude → Financial Record Keeping	0.483	(0.276-0.677)	0.302	4.691	<0.001	Supported
H4	Financial Awareness → Financial Attitude → Financial Record Keeping	0.352	(0.203-0.514)	-	4.407	<0.001	Supported , Complementary Mediation

The total association between Financial Awareness and Financial Record Keeping was positive and significant ($\beta = 0.725$, $t = 12.611$, $p < 0.001$). Because both the direct and indirect associations were significant and pointed in the same positive direction, the results showed a pattern consistent with complementary mediation.

4.3.1 Robustness Check: Alternative Structural Ordering

As an additional robustness check, an alternative structural ordering was estimated in which Financial Attitude preceded Financial Awareness, while both constructs remained associated with Financial Record Keeping. In this reversed-order model, Financial Attitude was

positively associated with Financial Awareness (β = 0.728, p < .001), while Financial Awareness (β = 0.374, p = .001) and Financial Attitude (β = 0.483, p < .001) remained positively associated with Financial Record Keeping. The alternative indirect association through Financial Awareness was also significant (β = 0.272, p = .002). The model explained 53.0% of the variance in Financial Awareness and 63.6% of the variance in Financial Record Keeping.

These results indicate that the reversed ordering is also statistically compatible with the cross-sectional data. Accordingly, the proposed Financial Awareness → Financial Attitude → Financial Record Keeping sequence should be interpreted as a theoretically specified structural ordering rather than evidence of temporal precedence or a uniquely supported causal mechanism.

4.3.2 Financial Awareness and Financial Attitude

Financial Awareness was positively associated with Financial Attitude, supporting H1. Respondents reporting greater attention to financial matters also tended to report more favorable evaluations of financial management. This result is consistent with Muat et al. (2025), who positioned financial awareness upstream of financial attitude in a broader serial mechanism. It also supports the distinction proposed by Tohar and Akron (2025) that awareness and attitude are not interchangeable constructs, although they are closely related.

From a behavioral finance perspective, the findings are consistent with an ordered association between cognitive attention to financial matters and evaluative financial attitudes. Aoun et al. (2026) similarly distinguish a cognitive financial component from financial attitude and demonstrate a cognition, attitude, behavior pathway. The present study extends this reasoning to MSME financial management by showing that awareness and attitude are empirically distinct yet strongly associated dimensions.

4.3.3 Financial Awareness and Financial Record Keeping

Financial Awareness was positively associated with Financial Record Keeping, supporting H2. Respondents reporting greater financial awareness also tended to report more consistent record-keeping practices. This suggests that greater attention to financial matters is associated with reported record-keeping routines rather than merely with recognition of financial information.

This result is consistent with broader evidence showing that financial awareness is associated with responsible financial behavior (Fahlevi et al., 2025; Tang, 2024). It also helps explain earlier record-keeping findings. Jonck and Nwosu (2022) show that lack of perceived need is a major reason for not keeping records, while Rawun and Tumilaar (2019) and Cahyaningsih and Rokayah (2024) document similar weaknesses among Indonesian MSMEs. Chukwuka et al. (2026) further identify limited awareness and understanding as barriers to systematic documentation. The present study adds quantitative evidence that greater awareness is associated with respondents reporting more consistent record-keeping practices. Rumianti and Launtu (2026) found that digital awareness, together with other dimensions of digital financial literacy, was positively associated with financial behavior among Indonesian millennials. Although their context differs from MSMEs and their measure concerns digital awareness, the finding supports the broader view that greater attention to financial matters may be reflected in reported financial practices.

4.3.4 Financial Attitude and Financial Record Keeping

Financial Attitude was positively associated with Financial Record Keeping, supporting H3. Respondents reporting more favorable financial attitudes also tended to report more consistent record-keeping practices. This suggests that favorable evaluations of financial

planning and control are associated with reported record-keeping routines. This interpretation is consistent with Rahayu et al. (2023), who found financial attitude to be positively associated with MSME financial management behavior, and Aoun et al. (2026), who identify attitude as an important psychological factor in financial behavior. The result is also consistent with qualitative evidence suggesting that unfavorable evaluations may discourage financial documentation. Abdull Rahman et al. (2025), for example, report that some enterprises perceive record keeping as an administrative burden rather than a strategic necessity.

4.3.5 Indirect Association Through Financial Attitude

The indirect association between Financial Awareness and Financial Record Keeping through Financial Attitude was significant, while the direct association remained significant. H4 was therefore supported, with the results showing a pattern consistent with complementary mediation. The indirect component represented approximately 48.6% of the total association between Financial Awareness and Financial Record Keeping. This percentage is interpreted as a descriptive decomposition of the observed association rather than as the proportion of a causal effect transmitted through Financial Attitude.

This finding extends previous evidence in two ways. First, Muat et al. (2025) demonstrate a pathway from financial awareness through attitude and behavior toward financial well-being, but do not examine MSME record keeping. Second, Aoun et al. (2026), Amonhaemanon and Vora-Sitta (2020), and Zaimovic et al. (2025) demonstrate attitudinal mediation beginning with financial literacy or financial knowledge rather than financial awareness. Meanwhile, Tohar and Akron (2025) model financial awareness and financial attitude primarily as parallel predictors.

The contribution of the present study should therefore not be interpreted as establishing attitudinal mediation for the first time, since related cognition, attitude, and behavior pathways have already been documented. Rather, the contribution lies in the level of behavioral specificity examined. Muat et al. (2025) position financial behavior within a broader pathway toward financial well-being, while Aoun et al. (2026) examine financial behavior as a broad outcome of financial literacy and financial attitude. Tohar and Akron (2025), meanwhile, distinguish financial awareness and financial attitude but model them as separate predictors of financial behavior. The present findings extend this literature by showing that the indirect association through Financial Attitude is also evident when the outcome is narrowed to self-reported Financial Record Keeping, a recurring operational practice involving the documentation and updating of business financial transactions. Thus, the study tests the scope of prior cognition and attitude models at a more behaviorally specific level rather than merely reproducing an established pathway in a different population.

For MSMEs with characteristics similar to those examined in this study, support programs may benefit from combining awareness-building with efforts to foster favorable financial attitudes and practical record-keeping skills. The findings suggest that greater financial awareness and more favorable financial attitudes are associated with respondents reporting more consistent record-keeping practices. Practical accounting training (Hassan et al., 2026; Musyaffi et al., 2025), simplified financial reporting systems (Perdana et al., 2024), and accessible digital recording tools (Sardjono et al., 2025) may help address practical barriers to record keeping. However, the present study does not establish whether such interventions improve the accuracy, completeness, quality, or accounting compliance of financial records. This study extends prior cognition, attitude, and behavior research by examining whether an attitudinal indirect association remains evident when the behavioral outcome is narrowed

from broad financial behavior to self-reported Financial Record Keeping as a specific and recurring MSME financial practice.

5. Conclusion and Suggestion

This study examined the relationships among Financial Awareness, Financial Attitude, and Financial Record Keeping among MSMEs in East Priangan. The findings show that Financial Awareness is positively associated with Financial Attitude and self-reported Financial Record Keeping, while Financial Attitude is also positively associated with self-reported Financial Record Keeping. A significant indirect association between Financial Awareness and Financial Record Keeping through Financial Attitude was also identified alongside a significant direct association. This pattern is consistent with complementary mediation and reinforces the importance of treating Financial Awareness and Financial Attitude as distinct yet related constructs in understanding self-reported financial record-keeping practices. Given the cross-sectional design, however, the observed indirect association should not be interpreted as establishing a temporal or causal sequence among these constructs.

Based on these findings, MSME support programs may consider combining awareness-building with efforts to foster favorable financial attitudes and practical record-keeping skills. Training and assistance may emphasize expenditure control, budgeting, future financial planning, reserve funds, and simple record-keeping practices that are relevant to daily business activities. For trading and culinary MSMEs with characteristics similar to those examined in this study, policymakers, financial institutions, and MSME support organizations may consider integrated financial management programs that address awareness, attitudes, and practical record-keeping needs. Future studies may extend the model by examining additional psychological or behavioral factors and assessing whether these relationships vary across MSME sectors or business characteristics.

6. Limitations and Future Research

This study is limited to 150 respondents from only two business sectors, namely trading and culinary, despite the much larger and more diverse MSME population in East Priangan. Consequently, the findings may not fully represent MSMEs operating in other sectors. Future studies could use larger and more diverse samples and, where feasible, probability-based sampling to assess the generalizability of these relationships.

Financial Record Keeping was measured based on respondents' self-reported practices and was not independently verified using objective evidence such as transaction logs, cash books, ledgers, digital accounting records, or financial statements. Therefore, the findings should be interpreted as reflecting reported record-keeping practices rather than objectively verified bookkeeping quality, completeness, accuracy, or accounting compliance. Because the predictor, mediator, and outcome variables were collected from the same respondents using the same questionnaire, social desirability and consistency motives also cannot be completely ruled out. Future research could adopt a multi-source design by combining self-reported data with actual cash books, accounting applications, bank or transaction records, financial statements, or standardized bookkeeping-quality measures.

Because Financial Awareness, Financial Attitude, and Financial Record Keeping were measured at the same point in time, the proposed structural ordering does not establish temporal precedence. The alternative structural ordering was also statistically compatible with the data, suggesting that the cross-sectional design cannot determine a unique temporal

sequence. Future research should therefore use longitudinal designs with temporally separated measurements to examine the proposed cognitive-evaluative-behavioral sequence more directly.

Although respondent role was included as a control variable and did not materially alter the main structural results, the employee subgroup was small relative to the owner subgroup. Formal subgroup comparison was therefore not undertaken, and future studies with more balanced respondent groups could examine whether the structural relationships differ between owners and employees.

The measurement instruments were developed by the authors based on conceptual dimensions identified in prior studies and should therefore be regarded as study-specific operationalizations requiring further validation. They were not subjected to formal expert-panel validation, cognitive interviewing, pilot testing, or content-validity indexing before the main survey. Future research should undertake a more comprehensive scale-development process, including expert assessment, cognitive interviews with MSME owners or managers, pilot testing, and confirmatory replication using an independent sample.

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Declaration of AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used ChatGPT (OpenAI) in order to assist with language editing, sentence refinement, manuscript organization, and improving the clarity and coherence of the presentation of the literature and research findings. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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APPENDIX

Table A1. Indicator-Level PLSpredict Assessment

Construct	Indicator	Q^2predict	PLS-SEM RMSE	LM RMSE	PLS-SEM MAE	LM MAE
Financial Attitude	FAT1	0.427	0.397	0.423	0.281	0.279
	FAT2	0.384	0.403	0.438	0.305	0.319
	FAT3	0.503	0.353	0.382	0.270	0.262
	FAT4	0.345	0.442	0.477	0.301	0.334
	FAT5	0.302	0.438	0.460	0.294	0.328
	FAT6	0.261	0.511	0.562	0.283	0.342
	FAT7	0.421	0.411	0.437	0.287	0.290
	FAT8	0.386	0.394	0.424	0.309	0.318
Financial Record Keeping	FRK1	0.385	0.469	0.488	0.313	0.295
	FRK2	0.302	0.625	0.652	0.397	0.428
	FRK3	0.410	0.416	0.439	0.264	0.271
	FRK4	0.450	0.419	0.438	0.262	0.280
	FRK5	0.366	0.426	0.470	0.282	0.319
	FRK6	0.348	0.458	0.510	0.285	0.327
	FRK7	0.430	0.394	0.428	0.271	0.290
	FRK8	0.297	0.482	0.521	0.279	0.331
	FRK9	0.385	0.433	0.470	0.288	0.314
	FRK10	0.372	0.460	0.490	0.289	0.301

Note: Lower RMSE and MAE values indicate lower prediction errors. LM refers to the linear model benchmark.

Table A2a. Item-Level Conceptual Audit of Financial Awareness

Code	Item Wording	Conceptual Assessment	Explicit Evaluative Wording	Included in Sensitivity Specification
FAW1	I recognize the importance of regularly evaluating business expenditures.	Recognition of a financial matter	Yes, "importance"	No
FAW2	I pay attention to whether business expenditures are appropriate to the financial condition of the business.	Attention to financial condition	No	Yes

FAW3	I recognize the importance of making a list of business needs before making purchases.	Recognition of a financial matter	Yes, "importance"	No
FAW4	I pay attention to the priority of business needs before making purchases.	Attention to purchase priorities	No	Yes
FAW5	I recognize the importance of knowing the amount of business debt.	Recognition of a financial matter	Yes, "importance"	No
FAW6	I pay attention to the due dates of business debt.	Attention to financial obligations	No	Yes
FAW7	I recognize the importance of seeking information about business financial management.	Recognition of a financial matter	Yes, "importance"	No
FAW8	I pay attention to information about digital payments related to business finances.	Attention to financial information	No	Yes
FAW9	I recognize the importance of discussing financial issues when facing business financial problems.	Recognition of a financial matter	Yes, "importance"	No

Note: The sensitivity specification retained FAW2, FAW4, FAW6, and FAW8 because these items were primarily framed in terms of attention to financial matters rather than explicit evaluations of the importance, necessity, or benefit of the corresponding financial practices. The remaining Financial Awareness items were retained in the main measurement model but omitted from the sensitivity specification.

Table A2b. Item-Level Conceptual Audit of Financial Attitude

Code	**Item Wording**	**Conceptual Assessment**	**Explicit Evaluative Wording**	**Included in Sensitivity Specification**
FAT1	I consider controlling business expenditures important.	Evaluation of the importance of expenditure control	Yes, "important"	Yes, unchanged
FAT2	I consider it necessary to avoid non-urgent business expenditures.	Evaluation of the necessity of expenditure control	Yes, "necessary"	Yes, unchanged
FAT3	I consider current financial management important for the future sustainability of my business.	Evaluation of the importance of future-oriented financial management	Yes, "important"	Yes, unchanged
FAT4	I believe that business financial decisions should consider their long-term consequences.	Belief about appropriate long-term financial decision making	Yes, "believe" and "should"	Yes, unchanged

FAT5	I consider preparing a monthly budget important for my business.	Evaluation of the importance of monthly budgeting	Yes, "important"	Yes, unchanged
FAT6	I believe that my business needs a monthly budget even when its income fluctuates.	Belief about the necessity of monthly budgeting	Yes, "believe" and "needs"	Yes, unchanged
FAT7	I consider it important to set aside part of business income as reserve funds.	Evaluation of the importance of maintaining reserve funds	Yes, "important"	Yes, unchanged
FAT8	I believe that regularly setting aside funds helps the business deal with unexpected needs.	Belief about the benefit of maintaining reserve funds	Yes, "believe" and "helps"	Yes, unchanged

Note: The item-level audit distinguishes Financial Awareness as recognition or attention to financial matters from Financial Attitude as an evaluative orientation involving importance, necessity, appropriateness, or perceived benefit. The sensitivity analysis modified only the Financial Awareness specification by retaining FAW2, FAW4, FAW6, and FAW8. All eight Financial Attitude indicators were retained unchanged in both the main and sensitivity models.

Table A3. Sensitivity Analysis Using the Restricted Financial Awareness Specification

Statistic	Main Model	Restricted Sensitivity Model
Number of FAW items	9	4
FAW items used	FAW1-FAW9	FAW2, FAW4, FAW6, FAW8
Outer loading range	0.746–0.904	0.845–0.902
Cronbach's α	0.948	0.897
rho_A	0.949	0.898
Composite Reliability	0.956	0.929
AVE	0.707	0.765
HTMT FAW–FAT	0.766	0.759
HTMT 95% CI	[0.653, 0.868]	[0.637, 0.870]
FAW → FAT	0.728, $p < .001$	0.702, $p < .001$
FAW → FRK	0.374, $p = .001$	0.307, $p = .003$
FAT → FRK	0.483, $p < .001$	0.539, $p < .001$
FAW → FAT → FRK	0.352, $p < .001$	0.379, $p < .001$
R^2 Financial Attitude	0.530	0.493
R^2 Financial Record Keeping	0.636	0.618

Note: The restricted specification was estimated as a sensitivity analysis and did not replace the main measurement model. Financial Awareness was restricted to FAW2, FAW4, FAW6, and FAW8, which were primarily framed in terms of attention to financial matters rather than explicit evaluations of the importance, necessity, or benefit of the corresponding financial practices. All direct and indirect associations remained positive and statistically significant, indicating that the substantive conclusions were consistent under the more restrictive specification.