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Behavioral Drivers of Capital Structure and Their Impact on MSE Performance: Evidence from Indonesia

Vebby Anwar[1]*, Andi Irwan[1], Muhammad Nabil Danial Bin Mohd Zaini[2], Rosdinaman Budi[1], Tasrim[3]
[1] Department of Management, Economics, Business and Humanities Faculty, Universitas Pendidikan Muhammadiyah Sorong, Indonesia
[2] Department of Services & Marketing, School of Business, Asia Pacific University of Technology and Innovation, Kuala Lumpur, Malaysia
[3] Department of Management, Faculty of Business and Law, Universitas PGRI Yogyakarta, Indonesia

ORCIDs:
First AUTHOR : https://orcid.org/0000-0003-4707-4843
Second AUTHOR : https://orcid.org/0000-0001-8109-1159
Fifth AUTHOR : https://orcid.org/0000-0002-0077-2874

*Corresponding author email: vebbyanwar1512@gmail.com

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ABSTRACT

Purpose: This study explores how financial behavior influences capital structure decisions and, in turn, affects firm financial performance and sustainable business growth among micro and small enterprises (MSEs) in Indonesia. Drawing on behavioral finance theory, the study examines the effects of three antecedents, financial literacy, risk tolerance, and behavioral biases on capital structure decisions. Furthermore, it investigates the mediating roles of access to finance and financial planning behavior, and the outcome effect of financial performance on long-term business growth.

Method: Data was gathered from 420 MSE owner-managers across a variety of Indonesian sectors using a standardized questionnaire. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to examine the data.

Findings: Results revealed that all three behavioral antecedents significantly influenced capital structure decisions. Capital structure, in turn, had both direct and indirect effects on firm financial performance, mediated through improved financial access and planning. Moreover, financial performance was found to positively influence sustainable business growth.

Novelty/Value: By relating behavioral characteristics to organizational outcomes and financial decision-making in the setting of an emerging economy, the study adds to the body of literature. Targeted financial education and behavioral interventions are necessary to improve financing results for MSEs, among other practical implications.

Keywords: Behavioral Biases, Emerging Markets, Financial Literacy, Financing Decisions, Micro-Enterprise Performance, Risk Tolerance

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INTRODUCTION

Micro and small enterprises (MSEs) represent a cornerstone of Indonesia's economy. According to data from the Ministry of Cooperatives and SMEs (2023), MSEs account for more than 99% of all business entities in the country and contribute approximately 61% to the national GDP while employing over 97% of the workforce (Thawley et al. 2024). These enterprises are often located in both urban and rural areas, playing a vital role in inclusive economic development. Despite their significance, MSEs in Indonesia continue to face persistent barriers in accessing external financing barriers that restrict their ability to grow, innovate, and compete in an increasingly dynamic business environment.

Conventional finance literature posits that firms make capital structure decisions based on rational considerations of cost and benefit, as outlined in theories such as the Modigliani-Miller theorem (Bossone, 2024), the trade-off theory (Lindset et al., 2024), and the pecking order theory (Myers & Majluf, 1984). These models suggest that firms systematically weigh the cost of debt against the dilution effects of equity or the use of internal funds, aiming to optimize their capital mix for performance and value creation. However, empirical evidence has shown that the financial decision-making behavior of small business owners often departs from these rational assumptions, particularly in developing and emerging economies (Nkwinika & Akinola, 2023). Such deviations are not merely academic concerns; they have tangible implications for firm performance. In micro and small enterprises (MSEs), where the owner's personal financial behavior often drives strategic decisions, irrational or biased financing choices can limit access to capital, restrict growth opportunities, and weaken overall financial performance. Given that MSEs are the backbone of employment and economic inclusion in countries like Indonesia, understanding how behavioral decision-making impacts their performance is essential for promoting sustainable development, reducing inequality, and designing more effective financial support mechanisms.

Behavioral finance provides a more nuanced framework by incorporating psychological and cognitive factors into financial decisions. Entrepreneurs, especially in micro and small enterprises, often rely on heuristics and subjective judgments rather than objective financial (Capolupo et al., 2024; Hjeij, 2023). Financial literacy the ability to understand and apply basic financial concepts has been found to significantly influence financing decisions, often determining whether an MSE applies for a loan or avoids formal credit due to misconceptions or lack of knowledge (Alnajem & Al-sudani, 2024; Hatidja et al., 2025). Similarly, individual risk tolerance shapes the entrepreneur's willingness to take on debt, while behavioral biases such as overconfidence, loss aversion, or debt aversion further impact capital structure choices.

In emerging markets like Indonesia, where credit markets are imperfect and financial inclusion remains uneven, such behavioral traits can critically affect whether and how business owners choose to finance their operations. Moreover, the decision to pursue a particular capital structure is not isolated from its consequences. It influences a firm's ability to access future financing, manage cash flows, and execute long-term planning factors that directly affect financial performance and sustainable business growth. While several studies have analyzed capital structure and firm performance, few have explicitly considered the mediating role of behavioral and financial planning mechanisms in this process (Boshnak, 2023; Bui et al., 2023).

By investigating the ways in which three fundamental behavioural antecedents—financial literacy, risk tolerance, and behavioural biases—influence capital structure choices made by micro and small businesses in Indonesia, this study aims to close these disparities. It further explores how these decisions impact firm financial performance both directly and indirectly through two mediating factors: access to finance and financial planning behavior. The model culminates in an assessment of sustainable business growth, representing the long-term outcome of effective or ineffective financial decisions. By focusing on behavioral drivers and mediation pathways, this research contributes a novel integrative perspective that combines classical finance theories with behavioral insights and contextual realities of small business management in emerging economies. The findings are expected to offer practical implications for policymakers, microfinance institutions, and SME development programs, particularly in designing financial literacy campaigns, credit risk assessments, and tailored financing tools that align with the psychological profiles of small business owners.

To provide a clear understanding of the study's focus, this paper centers on analyzing how behavioral factors namely financial literacy, risk tolerance, and behavioral biases influence capital structure decisions among micro and small enterprises (MSEs) in Indonesia. It further examines the mediating roles of access to finance and financial planning behavior and evaluates their combined effect on financial performance and sustainable business growth. While the study offers valuable insights, it is constrained by its cross-sectional design, reliance on self-reported data, and sample coverage limited to selected provinces. These limitations should be considered when interpreting the findings. The rest of the paper is organised as follows to help the reader: In Section 2, the hypotheses are developed and relevant literature is reviewed; in Section 3, the research methodology is outlined; in Section 4, the results and discussion are presented; in Section 5, the theoretical and practical implications are discussed; and in Section 6, the study is concluded by summarising the main findings and offering suggestions for future research directions.

LITERATURE REVIEW

Theoretical Foundation

This study is grounded in four key theoretical perspectives that collectively explain how micro and small enterprise (MSE) owners in Indonesia make capital structure decisions and how these decisions relate to firm performance. Behavioral Finance Theory provides the foundational lens for this research. Unlike traditional finance models that assume rational decision-making, behavioral finance recognizes that cognitive biases, limited information processing, and psychological traits significantly influence financial behavior (Capolupo et al., 2024). In the context of MSEs, owner-managers often rely on heuristics, personal beliefs, and emotional attitudes such as overconfidence, debt aversion, or financial anxiety when determining how to fund their operations. These behavioral traits are especially critical in emerging markets where financial literacy is uneven and formal financing systems may be perceived as inaccessible or intimidating.

Pecking Order Theory (Myers & Majluf, 1984) explains financing preferences among firms, positing that businesses prioritize internal funding sources, then debt, and finally external equity, due to concerns over asymmetric information and control dilution. This theory is particularly relevant to MSEs, where owners typically prefer retained earnings or informal borrowing over bank loans or external investors. The tendency to avoid formal finance can often be traced back to behavioral factors like perceived risk or mistrust in financial institutions.

Trade-Off Theory complements this by suggesting that firms aim to balance the tax advantages of debt with the potential costs of financial distress. Although MSEs may not engage in such formal optimization, the theory still provides a benchmark for evaluating their financing decisions. In the absence of professional financial management, MSEs often deviate from this optimal trade-off, not because of market conditions alone, but because of limited knowledge and psychological resistance to debt.

Prospect Theory (Jamaluddin, 2025; Kahneman & Tversky, 2013; Lin et al., 2024) adds further depth by explaining how MSE owners frame decisions under uncertainty. Rather than objectively weighing gains and losses, individuals are more sensitive to potential losses, leading to risk-averse or overly conservative financial behaviors. This can result in missed growth opportunities or underutilization of credit. Conversely, overconfident entrepreneurs may exhibit excessive risk-taking, jeopardizing financial stability.

Together, these theories offer a comprehensive understanding of how behavioral characteristics, financial cognition, and perceived risk shape capital structure decisions in small enterprises. Integrating these perspectives allows this study to move beyond static models and capture the dynamic, psychologically driven decision-making processes that influence MSE financial performance and sustainable business growth in Indonesia.

Financial Literacy and Capital Structure Decision

According to Abbas et al. (2023), financial literacy is the capacity to make wise financial judgments about how to spend and handle money. For MSE owners, this skillset encompasses understanding financial statements, credit terms, interest rates, and risk evaluation factors that are directly tied to capital structure decisions. In Indonesia, many small entrepreneurs operate without formal financial training, making them vulnerable to suboptimal financing decisions (Alam, 2025; Harini et al., 2023; Sulfiana, 2025). Studies by Kang et al. (2023) and Muñoz-Céspedes et al. (2024) highlight that financial literacy enhances an entrepreneur's ability to evaluate different financing options, such as debt versus equity, and to anticipate the consequences of their choices. Lack of financial literacy has been linked to excessive reliance on informal financing, underutilization of credit lines, or avoidance of beneficial debt due to misunderstanding financial risk. In line with the pecking order theory (Nkwinika & Akinola, 2023), better-informed entrepreneurs are more strategic in their preference for retained earnings, external debt, or equity, adjusting to their firm's lifecycle and investment needs. Thus, financial literacy enables entrepreneurs to engage in more structured and deliberate capital structure planning, reducing reliance on intuition and informal sources.

H1: In Indonesia, capital structure decisions made by micro and small businesses are significantly improved by financial literacy.

Risk Tolerance and Capital Structure Decision

Risk tolerance refers to the degree to which an individual is willing to take financial risks in pursuit of higher returns (Song et al., 2023). In MSEs, where the owner is often the primary decision-maker, personal risk preferences strongly influence financing behavior. High risk-tolerant individuals are more open to leveraging external debt for business expansion, while risk-averse individuals tend to rely on internal funds or informal lending sources to avoid perceived financial vulnerability (Masdupi et al., 2024). Entrepreneurs' risk perceptions affect not only their willingness to borrow but also the type of lenders they choose. Studies such as by Chhatoi & Mohanty (2023) and Fossen et al. (2024) reveal that risk-tolerant entrepreneurs are more inclined to engage in formal borrowing even in uncertain business environments, whereas risk-averse individuals may forego growth opportunities due to fear of loan repayment obligations or business failure.

This behavior aligns with prospect theory (Lin et al., 2024), which suggests individuals' decisions are not always rational but influenced by the framing of potential losses and gains. Therefore, risk tolerance is likely to shape capital structure decisions among MSEs, particularly in uncertain economic climates like those in many emerging markets.

H2: In Indonesia, risk tolerance positively influences the choice of capital structure for micro and small businesses.

Behavioral Biases and Capital Structure Decision

Behavioral biases such as debt aversion, discomfort with formal institutions, and risk avoidance have been identified as critical psychological factors influencing financial decision-making in entrepreneurial contexts (McGrath et al., 2024). Unlike overconfidence, which leads to excessive borrowing, these biases often reflect a more conservative stance toward financing such as avoiding debt even when it may benefit the business, or feeling uneasy about engaging with formal financial systems. Such tendencies are especially prevalent among micro and small enterprise (MSE) owners in emerging markets, where cultural stigma, limited financial trust, and procedural barriers increase the psychological cost of borrowing (McGrath et al., 2024; Syarifuddin et al., 2025).

Although these biases are commonly viewed as constraints to optimal financial behavior, they may also prompt more cautious and deliberate capital structure decision-making. Entrepreneurs who are wary of debt may still engage actively in financial planning, favor internal funding, or seek low-risk alternatives. As a result, even debt-averse entrepreneurs may demonstrate strong involvement in structuring their business finances, albeit with a preference for conservative financing choices. Therefore, in the context of this study, behavioral biases are expected to be positively associated with capital structure decisions not by encouraging more debt, but by fostering careful, risk-averse financial management.

H3: Behavioral biases have a positive and significant effect on capital structure decisions among micro and small enterprises in Indonesia.

Capital Structure Decision and Firm Financial Performance

The percentage of debt and equity used to finance corporate operations is determined by capital structure decisions. An ideal capital structure lowers the cost of capital and increases firm value, according to traditional financial theories (Kontuš et al., 2023). However, empirical studies have demonstrated that this link is complex and contingent on the market environment, firm size, and financial discipline (Alwan & Risman, 2023; Mansour et al., 2019).

In the context of MSEs, inappropriate capital structure choices such as excessive reliance on high-interest informal loans or underutilization of credit can constrain cash flow and limit growth potential. Conversely, a well-balanced capital structure enhances liquidity, enables expansion, and improves creditworthiness (Mensah et al. 2025). Empirical studies from emerging economies confirm that firms with access to structured financing and capital mix strategies demonstrate better financial outcomes (Supiandi et al., 2022; Zahid et al., 2023). Therefore, how MSEs structure their financing whether debt-heavy, equity-based, or bootstrapped directly affects financial performance indicators such as profitability, return on assets, and operational efficiency.

H4: The choice of capital structure significantly improves the financial performance of Indonesian micro and small businesses.

Mediating Role of Access to Finance

Access to finance refers to the ease with which businesses can obtain financial services such as credit, loans, and financial products (Siddik et al., 2023). It is not only a determinant of business growth but also a crucial link between strategic decisions and financial outcomes. In Indonesia, access to finance remains a top challenge for MSEs due to limited collateral, high perceived risk, and regulatory burdens (Hernawan et al. 2023). Capital structure decisions such as showing a sound debt-equity mix or maintaining good credit discipline can enhance a firm's financial profile and increase the likelihood of gaining access to formal financing. Firms that structure their capital responsibly are seen as less risky by lenders and thus gain easier access to loans, which are then used for investment, innovation, and efficiency improvements. Moreover, studies (Hussain et al., 2024; Mugano, 2024) have shown that when firms gain access to finance, they are better positioned to implement growth strategies and enhance productivity. This implies a mediating relationship between capital structure and firm performance.

H5: Among Indonesian micro and small businesses, the relationship between capital structure choice and firm financial performance is mediated by financial accessibility.

Mediating Role of Financial Planning Behavior

Financial planning behavior refers to the practice of setting financial goals, budgeting, saving, and monitoring cash flow (Yeo et al., 2024). MSEs that engage in proactive financial planning are better able to manage risks, allocate resources effectively, and respond to market changes. Such behavior is often the outcome of a deliberate capital structure strategy, where financial planning becomes a mechanism to ensure the efficient use of debt or equity.

Empirical evidence suggests that financial planning behavior is positively correlated with profitability and firm survival (Hernawan et al., 2023; Rany et al., 2024). It helps translate capital decisions into concrete operational strategies, supporting better use of borrowed funds or reinvested earnings. Furthermore, planning behavior improves decision-making under uncertainty, enabling firms to meet financial obligations and pursue new opportunities. Thus, financial planning behavior strengthens the link between capital structure and performance by acting as an implementation pathway.

H6: Among Indonesian micro and small businesses, financial planning behavior influences the association between capital structure decisions and firm financial performance.

Firm Financial Performance and Sustainable Business Growth

Sustainable business growth refers to the ability of firms to expand over the long term while maintaining financial health, market competitiveness, and resource efficiency (Yadegaridehkordi et al., 2023). For MSEs, achieving sustainable growth often depends on consistent profitability and sound financial performance, which allow reinvestment and risk absorption. Mugano (2024) emphasize that while growth can be opportunistic, sustainable growth is typically rooted in financial discipline, strategic decision-making, and effective use of capital. Firms that demonstrate strong performance metrics such as stable cash flow, profitability, and operational efficiency are more likely to survive economic shocks and expand over time. Therefore, firm financial performance is not only an outcome but a precursor to long-term business sustainability, especially in volatile and resource-constrained environments such as Indonesia.

H7: Firm financial performance has a positive and significant effect on sustainable business growth among micro and small enterprises in Indonesia.

The research framework is a diagrammatic description of the relationship of variables in this research as depicted in Figure 1.

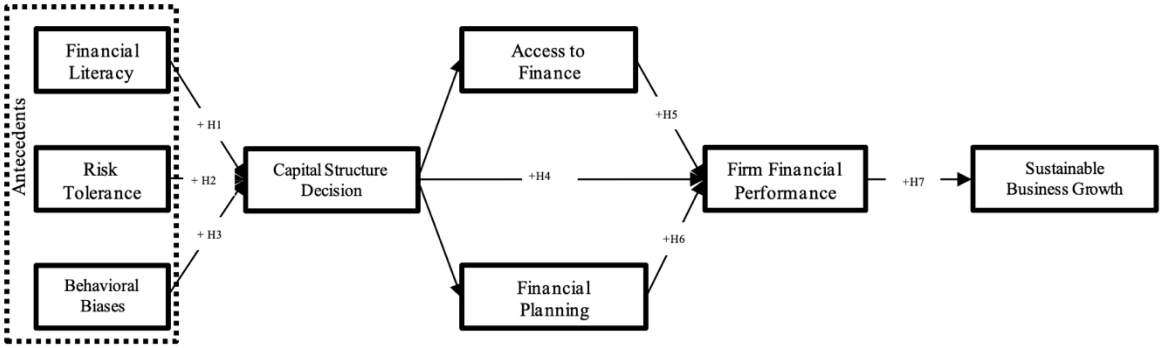

Figure 1. Research Framework

RESEARCH METHOD

Research Design

This study employed a quantitative, explanatory research design to investigate how financial behavior specifically financial literacy, risk tolerance, and behavioral biases influences capital structure decisions, and how these decisions subsequently impact firm financial performance and sustainable business growth among micro and small enterprises (MSEs) in Indonesia.

Sampling and Respondents

The target population consisted of owner-managers of MSEs located in four major provinces of Indonesia: West Java, Central Java, East Java, and Yogyakarta. These owner-managers represented various sectors, including retail, manufacturing, food and beverage, and services. The sampling technique used was purposive sampling, with selection criteria focusing on individuals who held primary responsibility for funding and budgeting decisions within their businesses.

Data Collection Procedure

The data collection was conducted from February to March 2025, covering a period of approximately two months. A total of 500 questionnaires were distributed through a mixed-mode approach that combined both in-person delivery and online dissemination. Collaboration with regional chambers of commerce and business associations facilitated outreach and distribution. Prior to the main data collection, a pilot test involving 25 MSE owner-managers was carried out to evaluate the clarity, face validity, and cultural appropriateness of the measurement items. Based on the feedback received, minor wording modifications were implemented to ensure contextual relevance and comprehension.

Following the completion of data collection, responses were screened for completeness and accuracy. After data cleaning, 420 valid responses were retained for analysis, resulting in an effective response rate of 84 percent. No notable variation was observed in the time required to collect responses across different provinces, suggesting a relatively uniform level of participant engagement and accessibility during the survey period.

Instrumentation

The questionnaire was designed to measure eight key constructs: financial literacy, risk tolerance, behavioral biases, capital structure decision, access to finance, financial planning behavior, firm financial performance, and sustainable business growth. A total of 28 items were adapted from previously validated instruments and were measured on a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The survey was initially developed in English and then back-translated into Bahasa Indonesia to maintain the accuracy of meaning and ensure cultural alignment. Table 1 display the item's construct in this research.

Table 1. Item's Construct

Construct	Items	Source
Financial Literacy	FL1. I understand the differences between interest rates on loans. FL2. I can read and interpret financial statements. FL3. I know how to calculate loan repayments. FL4. I am confident in making financial decisions.	Adapted from Siddik et al. (2023)
Risk Tolerance	RT1. I am willing to take risks for higher business returns. RT2. I prefer stable returns over uncertain gains. (R) RT3. I often take bold decisions even under uncertainty.	Adapted from Chhatoi & Mohanty (2023)
Behavioral Biases	BB1. I avoid taking loans even if it helps my business grow. BB2. I feel uncomfortable owing money to banks. BB3. I prefer not to involve formal institutions in my finances.	Adapted from Hamid (2025)
Capital Structure Decision	CS1. I carefully plan the proportion of debt and equity used. CS2. I consider long-term impacts before choosing a financing source. CS3. I prefer formal finance over informal sources. CS4. I review financing decisions regularly.	Adapted from Mensah et al. (2025)
Access to Finance	AF1. I find it easy to obtain business credit when needed. AF2. Financial institutions are accessible to my business. AF3. I can easily meet the loan requirements set by banks.	Adapted from Mugano (2024)
Financial Planning Behavior	FP1. I prepare budgets and monitor business cash flow regularly. FP2. I set long-term financial goals for the business. FP3. I maintain separate records for business and personal finances.	Adapted from Yeo et al. (2024)
Firm Financial Performance	FPf1. My business generates consistent profits. FPf2. I have sufficient cash flow to meet short-term needs. FPf3. My return on investment is satisfactory.	Adapted from Abdallah et al. (2024)
Sustainable Business Growth	SBG1. My business is expanding steadily over time. SBG2. I reinvest profits to support future growth. SBG3. My business is resilient to market changes.	Adapted from Rao et al. (2023)

Source: Literature Review (2025)

Data Analysis Technique

SmartPLS 4.0 software was used to analyse the data using Partial Least Squares Structural Equation Modelling (PLS-SEM). This method was chosen because it can handle data that is not normally distributed and is appropriate for estimating complex models with several mediators. There were two main phases of the analysis. First, the validity and construct reliability of the measurement model were assessed. Cronbach's Alpha and Composite Reliability (CR) were used to confirm internal consistency

reliability, and all constructions were over the suggested cutoff of 0.70. Average Variance Extracted (AVE) was used to establish convergent validity, with all constructs recording values greater than 0.50. Using the Heterotrait-Monotrait (HTMT) ratio and the Fornell-Larcker criterion, discriminant validity was confirmed; all values were below the upper limit of 0.85.

In the second stage, the structural model was assessed. The significance of path coefficients was tested using a bootstrapping procedure with 5,000 subsamples. The explanatory power of the model was assessed through R^2 values, while effect sizes (f^2) were calculated to determine the contribution of each independent variable. Predictive relevance (Q^2) was also examined using the blindfolding technique, and all Q^2 values exceeded zero, indicating strong predictive accuracy.

Common Method Variance (CMV)

To minimize the risk of common method variance, both procedural and statistical remedies were applied. The questionnaire was designed to promote respondent anonymity, used randomized item ordering, and included neutral phrasing to reduce social desirability bias. Statistically, the Full Collinearity VIF test, as recommended by Kock (2015), was performed. All variance inflation factor (VIF) values were below 3.3, confirming that CMV was not a significant concern in this study.

Goodness-of-Fit

Although global fit indices are not a requirement for PLS-SEM, the Goodness-of-Fit (GoF) index was calculated as the geometric mean of the average AVE and average R^2. The resulting GoF value was 0.594, which exceeds the threshold of 0.36 as suggested by Wetzels et al. (2009), indicating a strong overall model fit and supporting the robustness of the proposed theoretical framework.

RESULTS AND DISCUSSION

Results

Descriptive Statistics

The demographic details of the 420 MSE owner-managers who took part in the study are shown in Table 2. Regarding the distribution of respondents by gender, men made up the majority (56.7%), while women made up 43.3%. According to the age profile, the majority of participants (34.8%) were between the ages of 31 and 40, followed by those between the ages of 41 and 50 (29.5%), those under 30 (18.6%), and those over 50 (17.1%). According to these results, the majority of company owners were in their prime working and decision-making years. Regarding educational background, a significant number held a Bachelor's degree (37.1%), followed by Senior High School graduates (28.6%), and Diploma holders (17.6%). Only a small proportion had postgraduate education (8.1%) or junior high school or below (8.6%). This indicates a relatively well- educated sample, supporting the assumption that respondents had the basic knowledge required to understand and answer financial-related questions.

In terms of business sector representation, the largest group operated in the retail and trade sector (26.7%), followed by services (22.9%), food and beverage (22.4%), and manufacturing (16.2%). The remaining 11.9% operated in other sectors such as creative industries or agriculture-related businesses. Concerning business ownership duration, most enterprises had been operating for 3–5 years (31.9%), while others had operated for 6–10 years (27.6%), more than 10 years (21.0%), and less than 3 years (19.5%), indicating a balance between relatively new and more established firms. Lastly, with respect to business size, 59.0% of respondents owned micro-sized enterprises (1–4 employees), while 41.0% operated small-sized enterprises (5–19 employees). This distribution is consistent with national statistics on Indonesia's MSE population and supports the relevance of the sample for generalizing to similar business profiles.

Descriptive statistics for all measured constructs are presented in Table 3. The mean values ranged from 4.11 to 5.42 on a 7-point Likert scale, indicating a generally moderate to high level of agreement among respondents. Among the antecedent variables, Financial Literacy had the highest mean ($M = 5.42$, $SD = 1.12$), suggesting that respondents generally perceived themselves as knowledgeable in managing financial tasks and understanding financial products. The relatively moderate standard deviation implies a fair level of consistency among MSE owners in their financial

knowledge, with only slight variation in literacy levels. Risk Tolerance recorded a mean of 4.87 (SD = 1.25), reflecting that most MSE owners were somewhat open to taking financial risks, though the slightly higher standard deviation suggests more diverse attitudes toward risk across the sample. This could be influenced by factors such as industry type, age, or previous exposure to financial uncertainty.

Table 2. Demographic Profile of Respondents (n = 420)

Demographic Characteristic	Category	Frequency	Percentage
Gender	Male	238	56.7%
	Female	182	43.3%
Age	Under 30 years	78	18.6%
	31–40 years	146	34.8%
	41–50 years	124	29.5%
	Over 50 years	72	17.1%
Education Level	Junior High School or below	36	8.6%
	Senior High School	120	28.6%
	Diploma (D3)	74	17.6%
	Bachelor's Degree (S1)	156	37.1%
	Postgraduate (S2/S3)	34	8.1%
Business Sector	Retail and Trade	112	26.7%
	Food and Beverage	94	22.4%
	Manufacturing	68	16.2%
	Services (e.g., repair, consulting)	96	22.9%
	Others	50	11.9%
Business Ownership Duration	Less than 3 years	82	19.5%
	3–5 years	134	31.9%
	6–10 years	116	27.6%
	More than 10 years	88	21.0%
Number of Employees	1–4 employees (Micro)	248	59.0%
	5–19 employees (Small)	172	41.0%

Source: Author Analysis (2025)

Behavioral Biases showed the lowest mean (M = 4.11, SD = 1.39), indicating a moderate prevalence of debt aversion or discomfort with formal financial systems among the respondents. The relatively high standard deviation here reveals a wider spread of responses—some entrepreneurs reported strong avoidance of formal finance, while others appeared less constrained by such biases. This variation highlights the heterogeneous psychological and cultural attitudes toward credit in Indonesia's MSE landscape.

In terms of capital structuring, the Capital Structure Decision construct had a mean of 5.18 (SD = 1.10), suggesting that many respondents were actively engaged in evaluating and structuring their financing options. The low-to-moderate deviation indicates that most owner-managers had similar levels of involvement in financial decision-making, with only slight differences across sectors or regions. Among the mediating variables, Financial Planning Behavior showed a high mean (M = 5.36, SD = 1.07), reflecting those respondents generally practiced budgeting, forecasting, and structured planning. This is a positive indicator of financial management maturity among Indonesian MSEs. Access to Finance scored slightly lower (M = 4.76, SD = 1.30), suggesting mixed experiences—some entrepreneurs found financing relatively accessible, while others continued to face barriers, as reflected in the moderate spread of responses.

For the outcome variables, Firm Financial Performance (M = 5.08, SD = 1.15) and Sustainable Business Growth (M = 5.24, SD = 1.20) both received above-average scores, indicating that most businesses perceived their recent performance and long-term growth prospects positively. The standard deviations across all constructs (ranging from 1.07 to 1.39) fall within acceptable limits, indicating reasonable variability without excessive response dispersion or clustering. This suggests the sample

included a healthy range of perspectives while still reflecting coherent trends in behavioral, financial, and performance-related perceptions. Overall, these descriptive statistics provide early support for the relevance of the behavioral and financial constructs in capturing the real-world experiences of Indonesian MSE owner-managers and justify their use in subsequent structural analysis.

Table 3. Descriptive Statistics of Constructs (n = 420)

Construct	Number of Items	Mean	Standard Deviation	Min	Max
Financial Literacy	4	5.42	1.12	2.00	7.00
Risk Tolerance	3	4.87	1.25	1.00	7.00
Behavioral Biases	3	4.11	1.39	1.00	7.00
Capital Structure Decision	4	5.18	1.10	2.00	7.00
Access to Finance	3	4.76	1.30	1.00	7.00
Financial Planning Behavior	3	5.36	1.07	2.00	7.00
Firm Financial Performance	3	5.08	1.15	1.00	7.00
Sustainable Business Growth	3	5.24	1.20	1.00	7.00

Source: SMARTPLS (2025)

Measurement Model

All of the constructs showed excellent convergent validity and internal consistency, as shown in Table 4.

Table 4. Construct Reliability and Convergent Validity (Outer Loadings, α, CR, AVE)

Construct	Item Code	Outer Loading	Cronbach's Alpha (α)	Composite Reliability (CR)	AVE
Financial Literacy	FL1	0.814	0.845	0.892	0.674
	FL2	0.832			
	FL3	0.796			
	FL4	0.823			
Risk Tolerance	RT1	0.802	0.787	0.867	0.686
	RT2	0.851			
	RT3	0.819			
Behavioral Biases	BB1	0.774	0.758	0.856	0.665
	BB2	0.837			
	BB3	0.826			
Capital Structure Decision	CS1	0.802	0.849	0.895	0.681
	CS2	0.816			
	CS3	0.833			
	CS4	0.842			
Access to Finance	AF1	0.812	0.810	0.882	0.714
	AF2	0.875			
	AF3	0.842			
Financial Planning Behavior	FP1	0.851	0.823	0.891	0.731
	FP2	0.878			
	FP3	0.826			
Firm Financial Performance	FPf1	0.833	0.835	0.895	0.740
	FPf2	0.872			
	FPf3	0.873			
Sustainable Business Growth	SBG1	0.861	0.847	0.904	0.759
	SBG2	0.885			
	SBG3	0.871			

Source: SMARTPLS (2025)

All constructs had acceptable internal consistency, as indicated by the Cronbach's Alpha (α) values, which ranged from 0.758 to 0.849, exceeding the suggested criterion of 0.70 (Hair & Alamer, 2022). Comparably, the Composite dependability (CR) values exceeded the 0.70 standard and indicated good dependability of the latent variables, ranging from 0.856 to 0.904. The Average Variance Extracted (AVE) was used to evaluate convergent validity, and all constructs reported values above the 0.50 minimum requirement. In particular, AVE values between 0.665 and 0.759 demonstrated that each construct explained over half of the variation in its observed indicators. Additionally, each individual item's outer loading was greater than 0.70, suggesting that the indicators accurately reflected the corresponding latent structures. These findings support the measurement model's satisfactory convergent validity and reliability.

Table 5. Fornell-Larcker Criterion

Construct	FL	RT	BB	CS	AF	FP	FPf	SBG
FL (Financial Literacy)	**0.821**							
RT (Risk Tolerance)	0.512	**0.828**						
BB (Behavioral Biases)	0.438	0.447	**0.816**					
CS (Capital Structure)	0.587	0.498	0.432	**0.825**				
AF (Access to Finance)	0.493	0.442	0.410	0.604	**0.845**			
FP (Financial Planning)	0.525	0.466	0.396	0.593	0.537	**0.855**		
FPF (Firm Performance)	0.471	0.455	0.408	0.541	0.499	0.529	**0.860**	
SBG (Sust. Growth)	0.483	0.478	0.421	0.563	0.508	0.571	0.593	**0.871**

Source: SMARTPLS (2025)

As shown in Table 5, discriminant validity was further assessed using the Fornell-Larcker criterion. The square roots of the AVE for each construct (bold and displayed on the diagonal) were higher than the correlations between that construct and each other construct in the model. To illustrate its uniqueness, the AVE for Financial Literacy, for example, has a square root of 0.821, which is higher than its highest correlation with any other construct. All constructs showed similar patterns, demonstrating good discriminant validity and confirming the lack of multicollinearity. According to these findings, every construct in the model is distinct and captures phenomena that are not captured by other constructs (Hair et al., 2025).

To complement the Fornell-Larcker analysis, the Heterotrait-Monotrait (HTMT) ratio of correlations was examined as a more stringent test of discriminant validity. As shown in Table 6, all HTMT values were found to be below the conservative threshold of 0.90 recommended by Hair et al. (2025). The highest observed HTMT value was 0.668 between Capital Structure Decision and Access to Finance, still well below the critical limit. These findings reinforce the conclusion that discriminant validity was well established, indicating that the latent constructs in the model are conceptually and empirically distinct from one another.

Table 6. Heterotrait-Monotrait (HTMT)

Construct	FL	RT	BB	CS	AF	FP	FPf	SBG
FL	—	0.591	0.507	0.632	0.558	0.593	0.545	0.571
RT		—	0.521	0.561	0.505	0.541	0.534	0.562
BB			—	0.508	0.475	0.460	0.484	0.498
CS				—	0.668	0.648	0.589	0.602
AF					—	0.589	0.548	0.561
FP						—	0.576	0.621
FPf							—	0.641
SBG								—

Source: SMARTPLS (2025)

Common Method Variance (CMV)

To address concerns related to Common Method Variance (CMV), which can occur when data for both independent and dependent variables are collected from the same source, this study employed both procedural and statistical remedies. Procedurally, the questionnaire design incorporated anonymity assurance, item randomization, and the use of neutral and non-leading language to minimize social desirability bias and respondent fatigue. Statistically, CMV was assessed using the Full Collinearity Test as proposed by Hair et al. (2025) which involves evaluating the variance inflation factor (VIF) for each latent construct. If all VIF values are below the threshold of 3.3, CMV is considered not to be a serious issue in the dataset.

As shown in Table 7, the analysis revealed that the VIF values for all constructs ranged from 1.91 to 2.81, which are well below the recommended cut off of 3.3. This result indicates that no substantial common method bias was present in the study. Therefore, both the procedural design and statistical evaluation provide strong support that the findings of this study were not significantly influenced by common method variance, and the observed relationships among constructs can be interpreted with confidence.

Table 7. Full Collinearity VIF Values for Common Method Variance Assessment

Construct	VIF Value
Financial Literacy (FL)	2.35
Risk Tolerance (RT)	1.91
Behavioral Biases (BB)	2.14
Capital Structure Decision (CS)	2.81
Access to Finance (AF)	2.22
Financial Planning Behavior (FP)	2.67
Firm Financial Performance (FPF)	2.38
Sustainable Business Growth (SBG)	2.56

Source: SMARTPLS (2025)

Structural Model

The structural model analysis's findings, including path coefficients, t-values, p-values, R2, f2, and Q2 values for the pertinent associations, are shown in Table 8.

Table 8. Path Coefficients, Hypothesis Testing, R^2, f^2, and Q^2

Hypothesis	Path	β	t- value	p- value	f^2	Result	R^2	Q^2
H1	FL → CS	0.312	5.873	<0.001	0.104	Supported		
H2	RT → CS	0.227	4.262	<0.001	0.063	Supported	0.528	0.396
H3	BB → CS	0.188	3.457	<0.001	0.047	Supported		
H4	CS → FPF	0.355	6.122	<0.001	0.129	Supported		
H5	CS → AF → FPF	0.146	3.018	0.003	—	Supported	0.483	0.312
H6	CS → FP → FPF	0.173	3.621	<0.001	—	Supported		
H7	FPF → SBG	0.472	7.084	<0.001	0.183	Supported	0.479	0.345

Source: SMARTPLS (2025)

With t-values above 1.96 and p-values below 0.05, all of the model's hypothesized routes were determined to be statistically significant at the 0.05 level, so confirming all of the hypotheses put forth (H1 through H7). The three antecedents, financial literacy ($\beta = 0.312$, $p < 0.001$), risk tolerance ($\beta = 0.227$, $p < 0.001$), and behavioral biases ($\beta = 0.188$, $p < 0.001$) had significant positive effects on capital

structure decision. These findings confirm that financial behavior plays an essential role in shaping how Indonesian MSE owners manage their financing strategies. Capital structure decision showed a strong direct effect on firm financial performance ($\beta = 0.355$, $p < 0.001$). In addition, two significant indirect effects were found through access to finance ($\beta = 0.146$, $p= 0.003$) and financial planning behavior ($\beta = 0.173$, $p < 0.001$), confirming their roles as mediators. The final link in the model, the effect of firm financial performance on sustainable business growth, was also significant ($\beta = 0.472$, $p < 0.001$), underscoring the long-term impact of effective capital structuring and financial discipline.

The R^2 values for the endogenous constructs were moderate to high, with 0.528 for capital structure decision, 0.483 for firm financial performance, and 0.479 for sustainable growth. These results suggest that the model explains a substantial portion of variance in the outcome variables. Additionally, all Q^2 values exceeded zero, indicating strong predictive relevance for the endogenous constructs. Effect sizes (f^2) ranged from small (0.047) to moderate (0.183), further validating the strength of the proposed relationships.

Table 9. Goodness of Fit

Component	**Value**
Average AVE	0.712
Average R^2	0.497
GoF ($\sqrt{[AVE \times R^2]}$)	0.594

Source: SMARTPLS (2025)

The Goodness-of-Fit (GoF) index was calculated to assess the global fit of the model. As shown in Table 9, the average AVE was 0.712 and the average R^2 was 0.497. The resulting GoF value was 0.594, which exceeds the threshold of 0.36 for a large effect size, as suggested by Wetzels et al. (2009). This GoF result indicates that the research model has excellent explanatory power and overall fit, supporting the robustness of the theoretical framework. It confirms that the combined performance of the measurement and structural models is adequate and capable of explaining the behavior of MSEs in Indonesia with respect to financial decision-making and performance outcomes.

Discussion

The Role of Financial Literacy in Capital Structure and MSE Performance

The findings demonstrate that financial literacy has a significant and positive influence on capital structure decisions. This supports the hypothesis that owner-managers with a higher understanding of financial concepts are more likely to make rational and informed financing choices. In the structural model, financial literacy showed a strong path coefficient to capital structure ($\beta = 0.312$, $p < 0.001$), indicating that greater knowledge leads to more deliberate structuring of debt and equity. This aligns with the theoretical expectation from both behavioral finance theory and the pecking order theory. Behavioral finance explains that entrepreneurs who comprehend financial tools and risks can counteract irrational tendencies such as fear of debt or misunderstanding credit products. The pecking order theory suggests that informed entrepreneurs are better able to prioritize internal versus external financing sources based on cost and information asymmetry.

In the context of Indonesian MSEs, where many entrepreneurs operate without formal financial training, this finding is especially relevant. As Hernawan et al. (2023) observed, inadequate financial literacy limits access to external financing, thereby restricting firm growth. This study extends that insight by showing that financial literacy not only facilitates access to credit but also improves capital structure planning, which directly contributes to better financial performance and thus supports sustainable business growth.

Risk Tolerance as a Driver of Capital Structure and Growth

The data also revealed a significant positive relationship between risk tolerance and capital structure decisions ($\beta = 0.227$, $p < 0.001$). Entrepreneurs who reported a greater willingness to take financial risks were more likely to engage actively in structuring their capital, including the use of external debt.

This finding supports previous research that identifies risk tolerance as a critical psychological factor influencing financing behavior (Chhatoi & Mohanty, 2023; Fossen et al., 2024). The result aligns with prospect theory (Kahneman & Tversky, 2013), which argues that individuals' attitudes toward potential gains and losses shape their decisions under uncertainty. Risk-tolerant entrepreneurs are more likely to frame debt as a strategic opportunity rather than a financial threat, viewing credit as a tool for seizing growth opportunities rather than as a burden.

This interpretation is further supported by empirical studies indicating that risk-seeking entrepreneurs tend to pursue formal borrowing more confidently, even in volatile or uncertain environments (Masdupi et al., 2024; Song et al., 2023). In the Indonesian MSE context, where market volatility and funding constraints are common, this trait becomes especially important. MSEs led by risk-tolerant owners are more likely to explore diverse funding sources, undertake calculated financial risks, and implement forward-looking investment strategies. These behaviors can enhance liquidity, strengthen competitive advantage, and improve firm performance. Therefore, risk tolerance not only shapes financing decisions but also acts as a behavioral enabler of MSE success, resilience, and long-term growth.

Behavioral Biases and Cautious Financial Structuring

Interestingly, the study found a positive and significant relationship between behavioral biases and capital structure decisions ($\beta = 0.188$, $p < 0.001$), despite the initial assumption that such biases would lead to financial avoidance. This result reflects the nature of the items used to measure behavioral biases, which focused on debt aversion and discomfort with formal financial institutions. Previous studies have typically reported negative associations between debt aversion and borrowing behavior (McGrath et al., 2024). However, recent behavioral finance literature suggests that even risk-averse or emotionally biased entrepreneurs can still engage in structured financial behavior—albeit in more conservative forms (Capolupo et al., 2024; Hjeij, 2023).

Instead of disengaging from financial decisions, debt-averse entrepreneurs in this study appeared to adopt more cautious and deliberate capital structuring behavior. This suggests that biases such as fear of borrowing or mistrust of banks do not entirely paralyze decision-making but instead prompt MSE owners to carefully evaluate financial options often favoring internal funds or low-risk financing alternatives (Masdupi et al., 2024). This behavior is consistent with behavioral finance theory, which posits that irrational preferences do not necessarily lead to total inaction but can shape alternative, adaptive financial patterns (Almansour et al. 2023). While such biases may not result in optimal financing from a classical economic perspective, they may still foster consistent, if conservative, financial management. In MSEs, this kind of risk-averse decision-making may contribute to modest but stable financial performance supporting firm survival and gradual growth in volatile environments (Hussain et al., 2024).

Capital Structure Decisions and Firm Financial Performance

The study confirmed that capital structure decisions significantly influence firm financial performance ($\beta = 0.355$, $p < 0.001$). MSEs with more structured financing strategies reported higher performance in terms of profitability, cash flow, and return on investment. This reinforces the relevance of both the trade-off theory, which emphasizes the balance between debt benefits and distress costs, and the pecking order theory, which frames financing behavior as a hierarchy based on internal resource availability and external costs. Empirically, this result affirms previous studies by Alwan & Risman (2023) and Mensah et al. (2025) who found that firms with strategic debt-equity structures tend to perform better financially. Among MSEs in Indonesia, this relationship is particularly important, as it illustrates how deliberate financial planning shaped by behavioral traits can translate into operational efficiency and business viability.

Mediating Role of Access to Finance and Financial Planning Behavior

The study identified two key mediators that explain how capital structure decisions affect performance, namely access to finance and financial planning behavior. Access to finance served as a partial mediator ($\beta = 0.146$, $p = 0.003$), suggesting that better-structured capital decisions improve a firm's ability to obtain credit. This aligns with the notion that lenders are more willing to support enterprises that

demonstrate financial discipline and coherent capital planning. In addition, financial planning behavior also emerged as a significant mediator ($\beta = 0.173$, $p < 0.001$). Entrepreneurs who engaged in structured financing were more likely to create budgets, monitor cash flow, and plan long-term financial goals.

This supports findings by Hernawan et al. (2023) and Rany et al. (2024), who emphasized that planning behavior enhances resource allocation and risk management. These mediators highlight a deeper theoretical contribution that behavioral traits and financing behavior are not isolated, but part of a dynamic cycle that strengthens internal capabilities. For Indonesian MSEs, improving both access and planning through better capital decisions enhances financial outcomes and readiness for long-term development.

Financial Performance as a Predictor of Sustainable Business Growth

Finally, the study confirmed that firm financial performance has a strong positive effect on sustainable business growth ($\beta = 0.472$, $p < 0.001$). MSEs with consistent profits, adequate cash flow, and strong investment returns were more likely to report steady expansion and resilience over time. This supports the broader sustainability literature (Abbas et al. 2023), which links financial health to long-term survival and market adaptability. In emerging economies like Indonesia, where external shocks and funding limitations are common, the ability to maintain strong financial performance is essential for business continuity. This study shows that internal behavioral and strategic decisions starting from how owners think about finance—cascade through capital choices and ultimately determine whether firms can sustain growth in the long run.

CONCLUSION

This study examined how financial behavior specifically financial literacy, risk tolerance, and behavioral biases influences capital structure decisions and, in turn, affects firm financial performance and sustainable business growth among micro and small enterprises (MSEs) in Indonesia. The findings confirm that these behavioral factors significantly shape financing decisions, both directly and indirectly, through access to finance and financial planning behavior. Firm performance was also found to be a strong predictor of long-term growth, emphasizing the critical role of internal financial management in MSE sustainability. Theoretically, this study contributes to the behavioral finance and small business literature by shifting the view of capital structure from a purely economic outcome to a behaviorally influenced process. By integrating individual traits with mediating mechanisms like access to finance and planning behavior, the research supports multi-level theory building. It also addresses a contextual gap in the literature by applying the framework in an emerging market setting. In Indonesia, where institutional voids are common, behavioral factors appear even more influential in shaping financial decisions and firm outcomes.

From a practical perspective, the results highlight the need for financial literacy programs that go beyond technical knowledge to address behavioral barriers such as debt aversion and overconfidence. Financial institutions should consider behavioral profiling in SME lending practices to match products with entrepreneurs' risk tolerance and cognitive comfort. Furthermore, the role of financial planning behavior suggests that SME development programs should emphasize training in budgeting, forecasting, and long-term financial strategy.

Several limitations should be acknowledged. The cross-sectional design restricts causal inference, and the use of self-reported data may introduce bias. The study's geographic scope, while diverse, is limited to selected provinces, which may affect generalizability. Additionally, behavioral biases were treated as a single construct, meanwhile future research should explore distinct types for deeper insight. Future studies should consider longitudinal designs to observe behavioral changes over time and their impact on capital structure. Exploring the interaction between behavioral finance and digital financial literacy may reveal how fintech adoption reshapes financing behavior. Comparative research between formal and informal sectors or across economic contexts would also provide valuable contributions to the field.

AUTHORS' CONTRIBUTION

VA conceptualized the research idea and led the development of the theoretical framework. AI was responsible for the data collection process and initial data cleaning. MNDMZ contributed to the methodology design and statistical analysis. T assisted with literature review synthesis and validation of measurement instruments. RB handled data interpretation, discussion writing, and final manuscript editing. All authors reviewed and approved the final version of the manuscript.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article.

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AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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