

THE EFFECT OF FINANCIAL LITERACY, FINANCIAL INCLUSION, AND GENDER BEHAVIOR ON INVESTMENT DECISIONS WITH INVESTMENT EXPERIENCE AS A MODERATING

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Abstract

This study investigates the determinants of investment decisions among culinary Micro, Small, and Medium Enterprises (MSMEs) in Balikpapan, Indonesia. It addresses the critical need to understand why MSMEs, vital to economic resilience, often underutilize formal investment channels despite growing financial access. The research specifically examines the direct effects of financial literacy, financial inclusion, and gender behavior on investment decisions, and tests whether investment experience moderates these relationships. Employing a quantitative explanatory approach, data were collected via surveys from 130 MSME owners/managers and analyzed using PLS-SEM. The findings reveal that financial literacy and investment experience have a significant positive direct impact on investment decisions. Contrary to expectations, financial inclusion and gender behavior showed no significant direct effects. Furthermore, investment experience did not function as a significant moderating variable. The study concludes that for culinary MSMEs in this context, practical knowledge and direct experience are paramount drivers of investment decision quality, overshadowing the role of their access to finance or gender-based behavioral predispositions. These results emphasize the importance of designing MSME support programs that prioritize experiential financial education over generic access expansion. The research contributes to behavioral finance literature by providing a nuanced, context-specific model for MSME investment behavior.

Keywords : *Financial Literacy , Financial Inclusion , Gender Behavior , Investment Decision , Investment Experience*

Introduction

Micro, Small, and Medium Enterprises (MSMEs) are a fundamental pillar of the global economy, contributing significantly to gross domestic product and employment, both internationally and nationally (OECD, 2022 ; BPS, 2025) . This sector not only supports economic resilience but also drives innovation and inclusive growth. However, despite their resilience, MSMEs often face complex challenges related to business sustainability and scalability, partly due to the low utilization of formal investment as an expansion strategy (Demirgüç-Kunt, et al, 2022) . This condition indicates that improving the efficiency and quality of investment decisions at the MSME level will have a substantial impact on national economic welfare. A primary obstacle in MSMEs' investment decision-making is the gap between financial access and understanding. Although Indonesia's financial inclusion index has reached 80.51%, the financial literacy index lags at 66.46% (OJK, 2025) . This gap potentially hinders MSME actors from making rational and optimal investment decisions. In addition to cognitive factors such as financial literacy and inclusion, previous research also indicates that non-economic behavioral factors, particularly gender-based behavior, influence risk preferences and investment patterns (Croson & Gneezy, 2009 ; Marinelli, at. al, 2017) . However, findings regarding the influence of gender are not always consistent and are highly contextual, thus creating a research gap. On the other hand, most previous studies tend to examine the influence of financial literacy, financial inclusion, and gender behavior separately or by combining only two variables, without considering the role of investment experience as a contingency factor that could moderate the relationship among these variables (Lusardi & Mitchell, 2023 ; Sabir, at. al, 2019) . Therefore, research is needed that integrates these three main factors simultaneously within a comprehensive model, especially in the context of the culinary MSME sector, which possesses unique operational and financial characteristics.

Table 1. Data on the Distribution of Active MSMEs in Balikpapan City

Subdistrict	Number of MSMEs	Dominant Sector
South Balikpapan	3,200	Home cooking, catering, laundry, fashion
Central Balikpapan	2,500	Printing, snacks, packaged drinks
North Balikpapan	2,100	Urban farming, small farms, culinary businesses
West Balikpapan	2,000	Handicrafts, screen printing, creative home businesses
East Balikpapan	1,600	Processed fisheries, fish crackers, traditional food
Balikpapan City	1,400	Local coffee, bakery, souvenirs, typical souvenirs
Total	12,800	

Source: Balikpapan City DKUMKMP as of April 2025

This study aims to analyze the influence of financial literacy, financial inclusion, and gender behavior on the investment decisions of culinary sector MSME actors in Balikpapan City, considering the role of investment experience as a moderating variable. The focus on the culinary sector is based on its dominant contribution to the structure of Indonesian MSMEs (Institute for Development of Economics and Finance, 2024) and its characteristics of being working capital-intensive with rapid cash conversion cycles, making investment decisions a crucial element for business continuity (Choi et al., 2018). Academically, this article is expected to provide three main contributions. First, to enrich the behavioral finance literature by integrating cognitive (literacy), access (inclusion), and social demographic (gender) constructs into a cohesive research model. Second, to provide empirical evidence on the role of investment experience as a learning mechanism that moderates the relationships among the main variables. Third, to present the specific context of culinary MSMEs in Balikpapan City, which has unique socio-economic dynamics, thereby serving as a reference for developing more targeted and inclusive policies and mentoring programs.

LITERATURE REVIEW

Investment decisions in MSMEs are grounded in the integration of several key theories. From a traditional finance perspective, Modern Portfolio Theory (Markowitz, 1952) emphasizes the importance of diversification for risk management, although its application in MSMEs is often constrained by business scale and capital. Behavioral finance theory, particularly Prospect Theory (Kahneman & Tversky, 1979), provides a framework for understanding cognitive biases such as loss aversion that influence investor decisions, including MSME owner-managers. Meanwhile, the Theory of Planned Behavior (Ajzen, 1991) offers a lens to analyze how attitudes, subjective norms, and perceived behavioral control shaped by literacy and experience form investment intentions and behaviors. From a resource perspective, the Resource-Based View (Ajzen, 1991) highlights that strategic investment decisions depend on the unique resources possessed by the enterprise, including the owner's knowledge and capabilities.

Previous research consistently demonstrates the significant influence of financial literacy on the quality of investment decisions. Lusardi & Mitchell, (2023) affirm the central role of financial literacy in reducing financial mistakes and enhancing welfare. Studies in the MSME context by Suresh G, (2024) and Abdallah et al., (2025) find that financial literacy not only improves rational investment behavior but also strengthens business performance, especially when moderated by financial access. On the other hand, the influence of gender on risk preferences has been widely documented. Croson & Gneezy, (2009) and Čekalová, (2025) meta-analysis conclude that women tend to be more risk-averse than men in financial contexts. However, research by Munir et al., (2020) and Febriansyah et al., (2023) indicates that this gender influence can be moderated by other factors such as emotional intelligence and financial literacy. Regarding investment experience, studies by Awais et al., (2016) and Zhao & Zhang, (2021) prove that direct experience increases risk tolerance and the quality of investment decisions, sometimes even exerting a stronger influence than formal financial literacy.

Nevertheless, clear research gaps persist. First, the majority of prior studies focus on testing partial relationships between two variables (eg, literacy and investment decisions, or gender and risk tolerance) without integrating financial literacy, financial inclusion, and gender behavior into a single comprehensive model. Second, the role of investment experience is more frequently examined as a direct independent variable rather than as a contingency (moderating) factor that could strengthen or weaken the influence of cognitive and social variables on investment decisions. Third, the empirical context of most studies is still dominated by individual investors in capital markets or students, meaning their findings may not accurately depict the decision-making dynamics of MSME actors, particularly in the culinary sector with its unique operational characteristics and specific local market dynamics, as found in Balikpapan City.

Therefore, this article aims to address these gaps by proposing and testing an integrative model. This model not only analyzes the direct effects of financial literacy, financial inclusion, and gender behavior on the investment decisions of culinary MSMEs but also investigates the crucial role of investment experience as a moderating variable. Thus, the contribution of this article is threefold: theoretically, by enriching the behavioral finance framework through the integration of cognitive, access, and gender variables; methodologically, by testing a frequently overlooked moderating effect; and contextually, by providing empirical evidence from the under-researched population of culinary MSMEs in an Indonesian urban setting within the international literature.

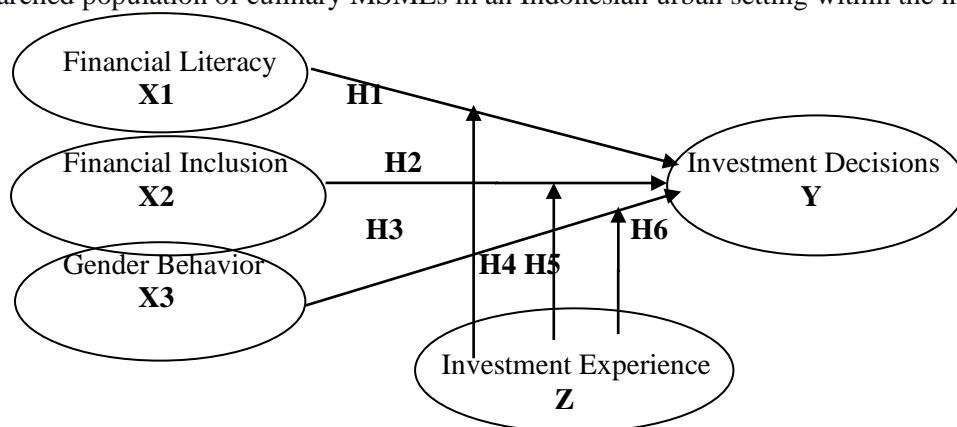


Figure 1. Research Conceptual Framework

Research Hypothesis Development

The Influence of Financial Literacy on Investment Decisions

Financial literacy reflects an individual's ability to understand fundamental financial concepts and manage resources. From a human capital perspective, it is a form of knowledge capital that enhances decision-making rationality.

Theory and empirical research strongly support its positive role:

1. Theoretically, it is central to reducing financial errors (Lusardi & Mitchell) and mitigating behavioral biases (Behavioral Finance). Within the Theory of Planned Behavior, it strengthens perceived behavioral control, fostering more rational and intentional investment actions (Mulyono, 2021).
2. Empirically, studies globally and in Indonesia confirm that financial literacy improves investment decision quality for retail investors and MSMEs. It aids in filtering market information, selecting instruments (Suresh G, 2024), and leads to better business financial practices such as capital budgeting and debt management (Fatmawati & Hariyati, 2025).

For culinary MSMEs in Balikpapan, this is crucial. Facing intense competition and market volatility, decisions often rely on intuition or trends without adequate financial literacy. Research indicates that financial literacy enables more planned and analytical business investment decisions such as in fixed assets or technology which subsequently improves performance (Anisa Salsabila Kemala Fikri & Nahda, 2023). Furthermore, it can weaken the negative impact of behavioral biases on decisions (Mahmood et al., 2024). Therefore, the logical hypothesis is that a higher level of financial literacy among culinary MSME actors in Balikpapan will lead to higher quality and more rational investment decisions.

H1: Financial literacy has a positive and significant effect on the investment decisions of culinary MSME actors in Balikpapan City.

The Influence of Financial Inclusion on Investment Decisions

Financial inclusion refers to the access, availability, and use of formal financial services. From a constraint-based theory perspective, limited access to these services is a major barrier to investment for individuals and MSMEs. Therefore, enhancing financial inclusion is expected to expand their investment opportunities and capacity. Key empirical findings support this:

1. Digital finance reduces financing constraints for MSMEs and encourages a shift towards more productive asset allocation (Feng et al., 2023) .
2. Access to financial services not only directly impacts MSME performance but also strengthens the effect of financial literacy on that performance (Abdallah et al., 2025) .
3. Access to credit, ease of obtaining financial product information, and proximity to financial institutions influence the investment behavior of MSME actors (Gusaptono et al., 2024) .

For culinary MSMEs in Balikpapan, financial inclusion is reflected in the ease of opening business accounts, obtaining loans, accessing digital payment gateways, and using savings or investment products. Better financial access provides greater freedom to plan and realize investments such as renovations, modern equipment purchases, or opening new branches compared to those excluded from the formal financial system. Theoretically, the link between financial inclusion and investment decisions can be explained through information and agency theories. Access to financial institutions reduces information asymmetry, provides structured financial products and guidance, and encourages financial reporting discipline. This creates a more conducive environment for measured investment decision-making.

In essence, the more inclusive the financial system is towards culinary MSMEs in Balikpapan, the greater their opportunity to make more frequent, larger, and better-directed investment decisions .

H2: Financial inclusion has a positive and significant effect on the investment decisions of culinary MSME actors in Balikpapan City .

The Influence of Gender Behavior on Investment Decisions

Gender behavior in a financial context refers to differences in attitudes, risk perception, confidence levels, and investment preferences between men and women, rooted in social constructs, cultural norms, and internalized gender roles.

Key theoretical and empirical insights include:

1. Social Role Theory posits that traditional social roles associating men with greater boldness, aggressiveness, and risk-taking, and women with more caution and protectiveness are reflected in financial behavior and investment decisions.
2. Consistent meta and empirical studies, including Sengupta, S., & Mitra, (2024) , show women tend to be more risk-averse, opting for conservative instruments like savings and deposits, while men tend to exhibit greater overconfidence and aggressiveness, engaging more with high-risk assets.
3. Research in Indonesia on millennials and Gen Z indicates similar patterns: women are more inclined to be cautious, avoid high risks, and rely on others' advice, while men more often make independent decisions and are willing to take greater risks (Hikmah & Toatubun, 2025) .

In the context of MSMEs, these differences manifest in business investment decisions. Female entrepreneurs may be more cautious regarding expansion or taking on large credit, while male entrepreneurs may be more inclined toward aggressive expansion or business diversification. This can lead to different patterns in decisions about opening new branches, adopting technology, or entering new financing schemes. Therefore, it is expected that gender behavior influences the investment decisions of culinary MSME actors in Balikpapan, affecting aspects such as investment size, frequency, asset type selection, and funding preferences. Assuming that local social roles and cultural norms remain influential, significant differences in investment decision patterns between male and female business actors are anticipated.

H3: Gender behavior has a positive and significant effect on the investment decisions of culinary MSME actors in Balikpapan City .

Investment Experience as a Moderator of Financial Literacy's Influence on Investment Decisions

Investment experience refers to the frequency and duration of an individual's involvement in investment activities, the types of instruments used, and exposure to past investment successes or failures. Theoretically, experiential learning suggests that real-world experience enriches existing knowledge schemas, allowing individuals to more skillfully apply financial literacy concepts in practice.

Research indicates:

1. Investment experience positively affects the quality of investment decisions.
2. It plays a crucial role in how individuals process risk information and respond to behavioral biases.

Importantly, recent studies position investment experience as a moderating variable that strengthens the effect of financial literacy on investment decisions. Individuals with high literacy but low experience may still be hesitant or overly cautious in executing investments. Conversely, those with both high literacy and high experience are better at translating knowledge into concrete, timely investment actions. For culinary MSMEs in Balikpapan, this suggests that business owners with strong financial literacy but little investment experience may remain reluctant to expand or take on long-term financing due to uncertainty. In contrast, those with practical experience are more likely to confidently apply their knowledge to evaluate investments, calculate payback periods, or compare financing options. Therefore, it is logically assumed that investment experience amplifies the positive influence of financial literacy on the investment decisions of MSME actors .

H4 : Investment experience strengthens the positive effect of financial literacy on the investment decisions of culinary MSME actors in Balikpapan City .

Investment Experience as a Moderator of Financial Inclusion's Influence on Investment Decisions

Conceptually, financial inclusion provides access to financial products and services. However, this access only becomes meaningful when individuals possess the capability and confidence to utilize it effectively. Investment experience acts as a critical factor that determines whether this access will be used productively.

Key research insights indicate:

1. The interaction between financial access and experience is vital. For example, access to financing and financial technology effectively improves MSME performance only when entrepreneurs have prior experience or a habit of using such products (Ramadani, 2025) .
2. In other words, financial and investment experience determines the extent to which financial inclusion is translated into tangible investment decisions.

Experienced entrepreneurs typically better understand the consequences of using credit, how to manage cash flow for repayment, and how to leverage digital financial services to support business investment strategies. Conversely, those with little experience may remain passive, using financial products only for basic transactions without scaling their operations. Evidence from capital market studies supports this principle, showing that investment experience moderates the relationship between personal characteristics and risk tolerance, ultimately influencing investment decisions (Perveen et al., 2020) . The same principle applies to the relationship between financial inclusion and investment decisions. For culinary MSMEs in Balikpapan, investment experience likely dictates whether access to financial institutions is utilized for business expansion or merely for routine transactions. Therefore, it is theoretically and empirically reasonable to propose that investment experience strengthens the positive relationship between financial inclusion and investment decisions.

H5: Investment experience strengthens the positive effect of financial inclusion on the investment decisions of culinary MSME actors in Balikpapan City

Investment Experience as a Moderator of Gender Behavior's Influence on Investment Decisions

Research on gender and finance shows that while behavioral differences between men and women (particularly in risk aversion and overconfidence) are persistent, they can be influenced by experience and knowledge. Studies, such as Sengupta, S., & Mitra, (2024) , indicate that gender gaps in risk tolerance and investment behavior tend to narrow as women gain more investment experience and access to adequate information. Theoretically, investment experience functions as a "joint learning mechanism" that allows both men and women to correct initial biases:

1. For women, positive investment experiences can build confidence, reduce excessive risk aversion, and encourage more active participation in investment decisions.
2. For men, experiences with market losses or volatility can temper overconfidence and foster greater caution.

Thus, investment experience has the potential to mitigate the extremes of gendered behavior (excessive caution or boldness) and promote a convergence toward more rational decision-making. Empirical research across various contexts supports that experience and literacy can reduce gender gaps in market participation and instrument choice. When women possess comparable experience and knowledge, differences in risk tolerance with men become significantly smaller. This indicates that investment experience moderates the influence of gender on investment decisions. Strong gender-based differences are evident at low experience levels but tend to weaken as experience increases.

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A similar dynamic is plausible for culinary MSMEs in Balikpapan. Female entrepreneurs with successful past investments may become less conservative, while male entrepreneurs who have experienced significant failures may become more selective and cautious. Therefore, it is logically assumed that investment experience will change the strength and direction of the influence that gender behavior has on the investment decisions of MSME actors.

H6 : Investment experience moderates the influence of gender behavior on the investment decisions of culinary MSME actors in Balikpapan City.

Methodology

This study employs a quantitative approach with an explanatory survey design to examine causal relationships among variables. This approach was selected as it aligns with the research objective to objectively and measurably assess the influence of financial literacy, financial inclusion, and gender behavior on investment decisions, as well as the moderating role of investment experience (Creswell, 2014) . The design is cross sectional, meanin the data were collected at a single point in time.

The research was conducted in Balikpapan City, East Kalimantan Province. The location was chosen based on the high potential of its culinary sector, unique local economic characteristics (supported by the energy sector and stable purchasing power), and the limited number of similar studies in this area. Primary data collection was carried out from December 2025 to January 2026. The research population comprised all owner-managers of actively operating culinary MSMEs in Balikpapan City. Using purposive sampling, respondents were selected based on the following criteria: 1) managing a micro, small, or medium-sized culinary enterprise, 2) being directly involved in business investment decision-making, and 3) the business has been operational for at least one year..

Table 1. Research Construct

Variables	Indicator	Statement Items	References
Investment Decision (Y)	Investment Frequency	Y1= I regularly set aside a portion of my business profits for savings and investment for future business development.	Manafe et al, (2025)
	Type of Instrument or Form of Investment Selected	Y2= I tend to avoid high-risk investments, even with high potential returns, due to concerns about business continuity.	
	Rationality of Investment Decisions	Y3= I always consider the potential return on investment to ensure it benefits my business	
	Investment Objectives and Time Horizon	Y4= I prefer long-term investments because I believe they yield greater results for business growth.	
	Response to Investment Risk or Loss	Y5= I respond to investment risks or losses with calm evaluation and appropriate strategy adjustments	
Financial Literacy (X1)	Basic Financial Knowledge	X1-1= I understand basic financial concepts such as profit, cash flow, interest, and inflation in running a business.	Suidarma <i>et al.</i> , (2024)
	Debt Management Literacy	X1-2= I understand the financing terms and am able to manage business debt wisely.	
	Budgeting Literacy	X1-3= I am able to create and follow a business budget to manage finances in a	

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Variables	Indicator	Statement Items	References
	Bank Services Literacy	planned manner. X1- 4= understand and am able to utilize formal financial services such as bank accounts, credit, savings, or digital payments.	
	Bookkeeping Literacy	X1-5= I can record business financial transactions accurately and use this information for business decision making.	
Financial Inclusion (X2)	Access to formal financial services	X2-1= I have easy access to formal financial services (banks, fintech, or other financial institutions) for business needs.	Arner et al, (2015)
	Usefulness (utilization) of financial services	X2-2= I actively use financial services (such as digital payments, business savings, or loans) to support my business activities.	
	Affordability and ease of use	X2-3= The financial services I use are easily accessible, affordable, and practical to operate in my daily business activities.	
	Benefits to business and investment activities	X2-4=Financial services help my business become more productive and grow (payment/transaction services, financing/credit services, insurance services, digital account services).	
	Integration into the formal financial system/service stability	X2-5= I am continuously connected to formal financial services to support business continuity (such as banking, QRIS, and digital payments).	
Gender behavior (X3)	Perception of risk	X3-1= I prefer to develop a business with a safe and proven strategy, even if the results are smaller, rather than taking a high-risk strategy to achieve greater profits.	Zulfiana & Hakim, (2020)
	Financial decision making	X3-2= I have full control to make decisions about the use of business profits for business development purposes.	
	Cultural influences on gender	X3-3=In my environment, men are considered more suitable to lead businesses and make important financial decisions in business development.	
	Involvement in financial	X3-4= Important decisions regarding investment and	

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Variables	Indicator	Statement Items	References
	decisions	business development are taken collectively and equally between me and my business partner/partners.	
Investment Experience (Z)	Duration of investment experience	Z1= I have a written plan/clear target for investment and business development in the next 5 years.	Botelho, T., Harrison, R., & Mason, C, (2021)
	Frequency of involvement in investments	Z2 = I am actively and directly involved in every stage of monitoring and decision-making related to my business investments.	
	Diversity of types of investments that have been made	Z3 = I have tried various types of investments to support the development of my business (such as product diversification, equipment purchases, business expansion, employee training, digital promotions, increasing raw material stock).	
	Previous investment success rate	Z4 = Past successful investment experiences have given me confidence in making strategic investment decisions in the future.	
	Reflection and learning from previous investment experiences	Z5 = I always take lessons from the success and failure of investments to improve the quality of decision making in my business in the future.	

Source: Primary Data, processed (2026)

The sample size was determined using the formula from Hair et al., (2020) for Structural Equation Modeling (SEM) analysis, which recommends 5–10 times the number of indicators. With 24 indicators, the minimum sample size was 120 respondents. This study successfully collected data from 131 respondents, deemed sufficient for inferential statistical analysis

Table 2. Respondent Demographics

Respondents Criteria	Category	Number of Respondents	Percentage (%)
By Gender	Female	79	60.3%
	Male	52	39.7%
By Age Category	< 25	6	4.6%
	25 - 34	43	32.8%
	35 - 44	59	45%
	45 - 54	21	16%
	> 54	2	1.5%
Highest Education Level	elementary school/junior high school	4	3.1%
	High School / Vocational School (SMA/SMK)	44	33.6%
	Diploma (D3)	25	19.1%
	Bachelor's Degree / D4	54	41.2%
	Master's Degree (S2) or higher	4	3.1%
	Marital status	Single	26
Married		96	73.3%
divorced		9	6.9%
Length of Business	1 - 5	64	71.7%
	6 - 10	26	19.8%
	> 10	11	8.5%
Sources of Business Capital	Personal Savings	101	77.1%
	Family Loans	22	16.8%
	Bank / Formal Credit	6	4.6%
	Other	2	1.5%
Business Ownership Status	Owner	119	91.50%
	Manager / Non-Owner	11	8.50%
Type of business	Micro Enterprise	129	98.5%
	Small Enterprise	2	1.5%
	Medium Enterprise	0	0%

Source: Primary Data, processed (2026)

A total of 131 respondents participated in this study. The demographic and firmographic characteristics of the sample are presented in Table 1. The gender distribution was relatively balanced, with a slight majority being female (60.3%). In terms of age, the largest cohort of respondents was between 35 and 44 years old (45.0%), followed closely by those aged 25-34 (32.8%), indicating that the sample primarily consisted of established, working-age individuals. Regarding educational attainment, the respondents were well-educated, with the majority holding a Bachelor's Degree / D4 (41.2%) or a High School / Vocational qualification (33.6%). Most participants were married (73.3%), reflecting a stable personal demographic profile. The data on business characteristics revealed that the respondents were predominantly experienced micro-entrepreneurs. A significant majority (67.9%) have been operating their businesses for 1 to 5 years, and an overwhelming 98.5% classify their ventures as micro-enterprises. This entrepreneurial activity is largely funded through personal savings (77.1%), with formal credit from banks playing a minimal role (4.6%). Furthermore, the vast majority of respondents (91.5%) were business owners, rather than hired managers, confirming that the sample provides direct insights into the owner-manager perspective.

Table 3. Collinearity Statistics (VIF)

	VIF
Investment Experience (Z) x Financial Inclusion (X2)	1,000
Investment Experience (Z) x Financial Literacy (X1)	1,000
Investment Experience (Z) x Gender Behavior (X3)	1,000

Source: Primary Data, processed (2026)

To verify the absence of multicollinearity among the constructs, a Variance Inflation Factor (VIF) assessment was performed. All VIF values were below the commonly accepted cutoff of 3.3, indicating that multicollinearity was not a concern in the model. This criterion is consistent with the guidelines outlined by Hair et al., (2021)

Results and Discussion

Convergent Validity

The loading factor is a coefficient that indicates the strength of the relationship between an indicator and its corresponding latent construct. According to JF Hair et al., (2019) , a loading value of ≥ 0.50 meets the threshold for practical significance, while a value ≥ 0.70 indicates a strong relationship. Loadings between 0.50 and 0.69 are still acceptable provided the construct's Composite Reliability (CR) and Average Variance Extracted (AVE) meet their respective criteria; these thresholds are thus crucial for deciding whether an indicator should be retained in the measurement model. Furthermore, an AVE value greater than 0.50 indicates that the latent construct explains more than 50% of the variance of its indicators, providing robust evidence of convergent validity. This benchmark AVE > 0.50 is consistently cited in PLS-SEM literature as the minimum criterion for convergent validity in reflective models (JF Hair et al., 2020b) . The analysis findings are derived from the processed data and are outlined in the table below:

Table 4. Outer Loadings Analysis Results

	FINANCIAL LITERACY X1	FINANCIAL INCLUSION X2	GENDER BEHAVIOR X3	INVESTMENT DECISIONS Y	INVESTMENT EXPERIENCE Z
X1-1	0.781				
X1-2	0.853				
X1-3	0.825				
X1-4	0.854				
X1-5	0.878				
X2-1		0.812			
X2-2		0.837			
X2-3		0.928			
X2-4		0.911			
X2-5		0.925			
X3-1			0.775		
X3-2			0.867		
X3-3			0.619		
X3-4			0.873		
Y1				0.811	
Y2				0.753	
Y3				0.807	
Y4				0.818	

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Y5	0.775
Z1	0.861
Z2	0.917
Z3	0.884
Z4	0.928
Z5	0.873

Source: Primary Data, processed (2026)

Referring to Table 4, based on the convergent validity test, all indicators for the variables of Financial Inclusion, Financial Literacy, Gender Behavior, Investment Experience, and Investment Decisions have outer loading values above the minimum threshold of 0.70, thus confirming their validity in representing the measured constructs. Although one indicator of Gender Behavior yielded an outer loading value of 0.619, it is still considered acceptable in research aimed at model development (JF Hair *et al.* , 2019) .

Construct Reliability

The results indicate that the Composite Reliability (CR) values are greater than 0.7. CR is considered superior to Cronbach's Alpha in the context of Structural Equation Modeling (SEM) because it does not assume that all indicators have equal weightings (loadings). CR measures internal consistency reliability based on the actual factor loadings of the indicators. Meanwhile, a Cronbach's Alpha value exceeding 0.7 remains a widely used standard to indicate that a set of indicators possesses good internal consistency in measuring the same construct (Cheung *et al.*, 2024) .

Table 5. Construct Reliability and Validity Results

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Financial Literacy	0.894	0.896	0.922	0.704
Financial Inclusion	0.929	0.933	0.947	0.782
Gender Behavior	0.792	0.816	0.867	0.624
Investment Decisions	0.852	0.853	0.894	0.629
Investment Experience	0.936	0.937	0.952	0.797

Source: Primary Data, processed (2026)

The results of the reliability and construct validity tests confirm that all research variables meet the criteria for sound measurement. Both Cronbach's Alpha and Composite Reliability for each variable exceed 0.70, indicating high internal consistency and instrument reliability. Furthermore, the Average Variance Extracted (AVE) for all constructs exceeds 0.50, confirming that convergent validity has been established. Therefore, all indicators and variables in the research model are declared reliable, valid, and suitable for further structural model testing (JF Hair *et al.*, 2020a) .

Table 6. Discriminant Validity Results

	IK (X2)	KI (Y)	LK (X1)	PI (Z)	PG (X3)	PI (Z) x LK (X1)	PI (Z) x PG (X3)	Pii (Z) x IK (X2)
IK (X2)								
KI (Y)	0.745							
LK (X1)	0.862	0.859						
PI (Z)	0.779	0.876	0.797					
PG (X3)	0.777	0.813	0.753	0.826				
PI (Z) x LK (X1)	0.388	0.516	0.361	0.299	0.473			
PI (Z) x PG (X3)	0.382	0.444	0.428	0.248	0.386	0.830		
PI (Z) x IK (X2)	0.383	0.533	0.407	0.290	0.458	0.916	0.874	

Source: Primary Data, processed (2026)

Based on the discriminant validity test using the Fornell-Larcker criterion, all constructs in the research model have met the requirement for sound discriminant validity. The square root of the Average Variance Extracted (AVE) for each variable is greater than its correlation with any other variable. This indicates that each construct namely Financial Inclusion, Financial Literacy, Gender Behavior, Investment Experience, and Investment Decisions possesses clear measurement distinctiveness and is empirically distinguishable from the other constructs in the model .

Coefficient of Determination Test (R^2)

The coefficient of determination (R^2) serves as a measure of the proportion of variance in the dependent variable (endogenous construct) that is explained by one or more independent variables (exogenous constructs) in the model. R^2 assesses the model's explanatory power. There is no absolute threshold for its value; however, according to (J. Hair et al., 2017) , it can be interpreted as follows:

1. $R^2 \approx 0.75$: Substantial
2. $R^2 \approx 0.50$: Moderate
3. $R^2 \approx 0.25$: Weak

The interpretation of R^2 is highly dependent on the research context. In complex social and behavioral sciences, an R^2 value of approximately 0.20 may still be meaningful and interpretable

Table 7. Results of R Square Analysis

	R-square	R-square adjusted
INVESTMENT DECISIONS	0.748	0.733

Source: Primary Data, processed (2026)

The results of the coefficient of determination analysis indicate a robust explanatory power for the model. The Investment Decisions construct has an R^2 of 0.748 and an adjusted R^2 of 0.733. This signifies that the independent variables Financial Inclusion, Financial Literacy, Gender Behavior, and Investment Experience, including their interaction effects collectively account for 74.8% of the variance in Investment Decisions. The remaining 25.2% of the variance is attributable to other factors not included in the model. According to conventional thresholds (eg, J. Hair et al., 2017) , this R^2 value falls within the substantial range. Consequently, the structural model demonstrates strong predictive capability in explaining investment decision-making behavior.

Predictive Relevance Test (Q^2)

The Stone-Geisser Q^2 (Q-squared) statistic is used to measure a model's predictive relevance. This test is performed using a blindfolding procedure to assess how well observed values can be reconstructed by the model and its parameters. A Q^2 value greater than 0 ($Q^2 > 0$) indicates that the model has predictive relevance, whereas a value less than 0 ($Q^2 < 0$) indicates it lacks predictive relevance. According to Enis & Geisser, (1974) , the magnitude of Q^2 can be further interpreted as follows:

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1. $Q^2 > 0.35$: Strong predictive relevance
2. $Q^2 > 0.15$: Moderate predictive relevance
3. $Q^2 > 0.02$: Weak predictive relevance

Table 8. PLSpredict LV Summary

	$Q^2_{predict}$	RMSE	MAE
INVESTMENT DECISIONS	0.71	0.557	0.437

Source: Primary Data, processed (2026)

The assessment of the model's predictive relevance yields strong results. The Stone-Geisser Q^2 (Q-squared) value for the endogenous construct of Investment Decisions is 0.710. Since this value exceeds zero, it confirms that the model has substantial predictive relevance. This finding implies that the proposed structural model is not only theoretically sound but also demonstrates robust out-of-sample predictive power for investment decision behavior. The model's predictive accuracy is further supported by the error metrics. The calculated Root Mean Square Error (RMSE) is 0.557, and the Mean Absolute Error (MAE) is 0.437. These relatively low values indicate a good fit between the model's predictions and the observed data, with smaller values corresponding to higher predictive accuracy. Consequently, the overall evidence confirms the model's strong predictive quality, establishing its suitability for subsequent hypothesis examination.

Hypothesis Testing

The statistical significance of path coefficients is assessed by comparing the calculated t-statistic or p-value against standard critical values. A path is considered statistically significant if its absolute t-statistic exceeds 1.96 (corresponding to a p-value < 0.05) or 2.57 (p-value < 0.01). Alternatively, significance can be determined directly by a p-value below the conventional thresholds of 0.05 or 0.01. A higher absolute t-statistic (or a lower p-value) indicates stronger evidence against the null hypothesis, suggesting the observed effect is genuine and not a product of random sampling error. The alpha level of 0.05 is the conventional benchmark for declaring a result "statistically significant" in social science research.

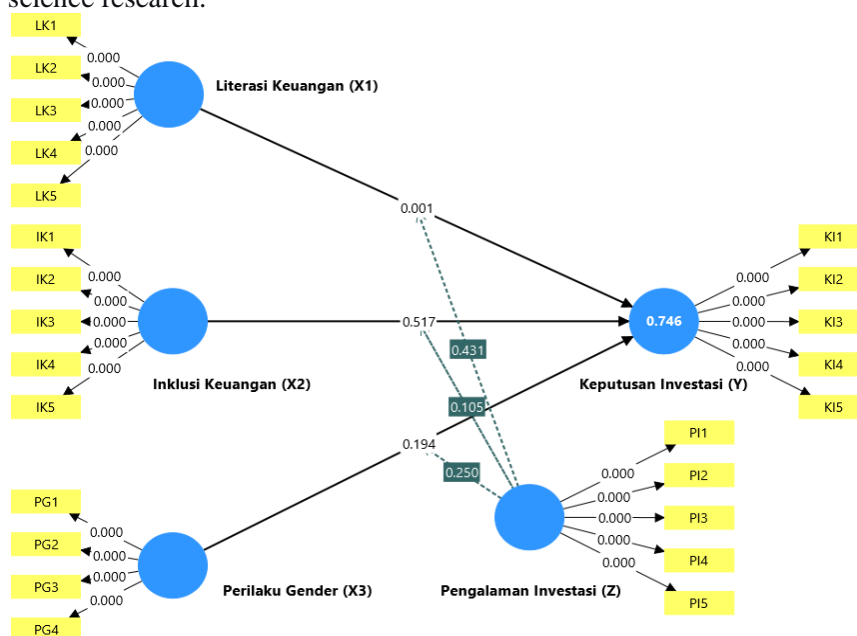


Figure 2. Path Coefficients of the Outer and Inner Models in PLS SEM

Source: Smart PLS Output Results

Testing the significance of path coefficients is a substantive step to determine whether the hypothesized direct effects of independent variables and moderating variables between constructs in the model are statistically significant or merely occur by chance in the sample. The results of this test will serve as the basis for accepting or rejecting the proposed research hypothesis.

Table 7. PLSpredict LV Summary

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
FINANCIAL INCLUSION -> INVESTMENT DECISIONS	-0.084	-0.072	0.137	0.613	0.27
FINANCIAL LITERACY -> INVESTMENT DECISIONS	0.35	0.341	0.102	3,433	0.001
GENDER BEHAVIOR -> INVESTMENT DECISIONS	0.102	0.109	0.082	1,249	0.106
INVESTMENT EXPERIENCE -> INVESTMENT DECISIONS	0.45	0.443	0.089	5,031	0.001
INVESTMENT EXPERIENCE x FINANCIAL INCLUSION -> INVESTMENT DECISIONS	-0.15	-0.16	0.096	1,566	0.059
INVESTMENT EXPERIENCE x FINANCIAL LITERACY -> INVESTMENT DECISIONS	-0.063	-0.053	0.077	0.81	0.209
INVESTMENT EXPERIENCE x GENDER BEHAVIOR -> INVESTMENT DECISIONS	0.094	0.084	0.081	1,155	0.124

Source: Primary Data, processed (2026)

The results of the structural model assessment regarding the direct effects on investment decisions are presented in Table X and summarized below. The path from Financial Literacy to Investment Decisions is positive and statistically significant ($\beta = 0.350$, $t = 3.433$, $p < 0.001$). This supports **H1**, confirming that higher levels of financial literacy are associated with a greater propensity for investment decision-making. The analysis reveals a negative, non-significant direct effect of Financial Inclusion on Investment Decisions ($\beta = -0.084$, $t = 0.613$, $p = 0.270$). Therefore, **H2**, which hypothesized a positive and significant effect, is **not supported**. This suggests that, in this model, access to and use of formal financial services does not directly translate into investment activity. The path from Gender Behavior to Investment Decisions is positive but statistically non-significant ($\beta = 0.102$, $t = 1.249$, $p = 0.106$). Thus, **H3 is rejected**. The hypothesized influence of gender-related behavioral traits, such as risk tolerance, on investment decisions is not supported by the direct path in this analysis. Investment Experience exhibits a strong, positive, and highly significant direct effect on Investment Decisions ($\beta = 0.450$, $t = 5.031$, $p < 0.001$). This finding strongly supports the notion that prior experience in investing is a powerful determinant of subsequent investment behavior. The test for the moderating role of Investment Experience (Z) yielded the following findings: (a) the interaction between Investment Experience and Financial Literacy (Z x (b) the interaction between Investment Experience and Financial Inclusion (Z x and (c) **the interaction between Investment Experience and Gender Behavior (Z x** Overall, Investment Experience did not demonstrate a statistically significant moderating effect on any of the proposed relationships within this model.

Conclusion

Based on the data analysis and discussion, the following conclusions address the research problems: Financial literacy has a positive and significant effect on the investment decisions of culinary SME entrepreneurs in Balikpapan. This finding supports the first hypothesis (H1), indicating that a strong understanding and knowledge of finance directly enhances the quality of investment decisions. Financial inclusion does not have a significant effect on investment decisions. Although access to formal financial services is available, it is insufficient to drive better investment decisions without adequate support from financial literacy and investment experience. Gender behavior does not have a significant effect on investment decisions. In the context of culinary SMEs in Balikpapan,

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gender-based behavioral differences are not a dominant factor in investment decision-making. This suggests that the practical demands of the business are more influential than traditional gender roles. Investment experience does not moderate the effect of financial literacy on investment decisions. Investment experience neither strengthens nor weakens the relationship between financial literacy and investment decisions, indicating that the influence of financial literacy is direct. Investment experience does not moderate the effect of financial inclusion on investment decisions. Access to finance does not become more or less effective in influencing investment decisions, even when supported by investment experience. Investment experience does not moderate the effect of gender behavior on investment decisions. Investment experience also does not change the relationship between gender behavior and investment decisions. .

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