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Financial Risk Management Strategy In Facing Fluctuations In Raw Material Prices At Modern Coffee Shops In Bogor City: Initial Empirical Evidence

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Abstract

Raw material price fluctuations represent a significant challenge to the sustainability of modern coffee shops because they can increase operating costs, reduce profit margins, and affect financial stability. This study aims to analyze financial risk management strategies in dealing with raw material price fluctuations among modern coffee shops in Bogor City through an initial empirical examination of the relationship between Supply Chain Risk (SCR), Digital Financial Literacy (DFL), and Enterprise Risk Management (ERM) and Financial Risk Management (FRM), as well as the relationship between FRM and Business Performance (BP). The study employed a quantitative explanatory research design involving 100 owners or managers of modern coffee shops in Bogor City selected through purposive sampling. Data were collected using a structured questionnaire and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that ERM has a positive and significant relationship with FRM ($\beta = 0.733$; $p < 0.001$), whereas SCR ($\beta = 0.180$; $p = 0.551$) and DFL ($\beta = 0.077$; $p = 0.799$) did not receive statistical support. Furthermore, FRM has a positive and significant relationship with BP ($\beta = 0.653$; $p < 0.001$). The R^2 values indicate that the model explains 82.9% of the variance in FRM and 42.6% of the variance in BP. However, the HTMT and VIF results indicate limitations in construct distinctiveness and multicollinearity. Therefore, the findings provide initial empirical evidence and partial support for the proposed model, highlighting the importance of integrating risk management processes with financial planning and control.

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Keywords:Financial Risk Management; Raw Material Price Fluctuation; Enterprise Risk Management; Supply Chain Risk; Digital Financial Literacy; Business Performance.

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are a crucial pillar of the Indonesian economy, contributing to job creation, equitable distribution of economic activity, entrepreneurial development, and strengthening regional economies. The culinary sector is showing increasingly strong dynamics in line with changes in consumer consumption patterns and the growth of the creative economy. The 2024 Creative Economy Gross Domestic Product (GDP) infographic published by the Ministry of Creative Economy of the Republic of Indonesia shows that the creative economy's GDP continues to grow. This development is also accompanied by increased use of technology in MSME activities. Affandi et al. (2024) show that the adoption of digital technology in ultra-micro, micro, and small businesses in Indonesia is associated with improved business performance and financial capabilities. This condition indicates that the development of MSMEs not only creates market opportunities but also demands increasingly adaptive business management capabilities.

One growing business in the culinary sector is the modern coffee shop. This business growth is supported by high domestic coffee consumption in Indonesia, which, according to data from the United States Department of Agriculture (USDA), was around 4.8 million 60-kg bags in the 2024/2025 period. Coffee has not only become part of people's consumption patterns, but modern coffee shops have also developed as spaces for working, studying, discussing, networking, and engaging in social activities. This situation creates business opportunities while increasing the intensity of competition through product differentiation, service quality, atmosphere, price, and customer experience. This business growth has made coffee shop management increasingly complex because owners not only need to increase sales but also manage the costs of raw materials, inventory, labor, utilities, distribution, digital payments, and cash flow simultaneously. Hadjielias et al. (2022) show that the adaptability of business owners is a crucial element in building small business resilience when facing changes in the external environment.

This phenomenon is also evident in the development of MSMEs in Bogor City, which is characterized as a center of education, trade, tourism, and culinary activities with relatively high community mobility. This condition creates a potential market for

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modern coffee shops serving students, tourists, workers, and urban communities. According to the Bogor City One Data Portal, the number of productive MSMEs experienced dynamics from 2019 to 2023, namely 1,090 units in 2019, 1,085 units in 2020, increasing to 1,395 units in 2021 and 2,026 units in 2022, then to 1,695 units in 2023. This development demonstrates the dynamics of entrepreneurial activity while increasing the intensity of business competition. In these conditions, modern coffee shops must maintain competitive prices and product quality and service while facing changes in raw material costs. Risks faced include not only changes in the prices of coffee beans, milk, sugar, food ingredients, packaging, energy, and distribution, but also supply delays, dependence on certain suppliers, changes in raw material quality, and uncertainty about material availability.

The problem becomes increasingly complex because commodity price fluctuations can impact business management and decision-making. Manogna et al. (2025) demonstrated that agricultural commodity prices are volatile and nonlinear, making the ability to anticipate price changes crucial for decision-making. For coffee, uncertainty also relates to the supply chain, which involves various actors and stages of distribution. Clavijo-Buritica et al. (2023) demonstrated that the coffee supply chain requires resilience to deal with disruptions and uncertainties that can impact supply continuity. This situation is increasingly relevant for MSMEs, which have limited resources to deal with external disruptions. Babu and Yadav (2023) emphasized that various sources of risk in the supply chain can impact the sustainability of MSME activities, necessitating systematic risk identification and management. In the context of modern coffee shops, fluctuations in raw material prices can increase operational costs, reduce profit margins, increase cash flow uncertainty, and increase exposure to financial risk. Increases in raw material prices cannot always be fully passed on to consumers, as businesses need to consider purchasing power, consumer sensitivity to price changes, and the level of market competition.

These conditions place Financial Risk Management (FRM) as a crucial capability in managing modern coffee shops. FRM, in this study, represents a business's ability to manage financial risks arising from fluctuations in raw material prices through financial planning, cost control, cash flow management, provision of reserve funds, and risk-based decision-making. The need for integrated financial risk management is increasingly important because Aditya and Purba (2026), through a Systematic Literature Review of 35 Scopus journal articles Q1 from 2020 to 2025, found that MSME financial risk management is evolving from a partial cost control approach to a more

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adaptive, integrated, and resilience-oriented approach. These results identified five main strategic groups: cost control, technology-based price volatility prediction, strengthening financing, strengthening organizational capacity, and collaboration within the business ecosystem. However, there is still a fragmentation gap because various financial risk management factors are often studied separately, a model gap because research that simultaneously integrates Supply Chain Risk (SCR), Digital Financial Literacy (DFL), and Enterprise Risk Management (ERM) as factors related to FRM and places Business Performance (BP) as a consequence of FRM is still limited, and a contextual gap because testing the relationship in modern coffee shop businesses in Bogor City is still relatively limited.

Based on these problems and gaps, this study aims to analyze financial risk management strategies in dealing with raw material price fluctuations in modern coffee shops in Bogor City through initial empirical testing of the relationship between Supply Chain Risk, Digital Financial Literacy, and Enterprise Risk Management with Financial Risk Management, as well as the relationship between Financial Risk Management and Business Performance. This study also aims to identify factors that show the strongest contribution in the formation of FRM and formulate implications for financial risk management strategies that are relevant for modern coffee shops in dealing with raw material cost uncertainty. The urgency of this research lies in the need to obtain empirical evidence regarding the application of financial risk management strategies in businesses that face changes in raw material costs directly. The novelty of this research lies in the operationalization of the conceptual framework resulting from Aditya and Purba's (2026) Systematic Literature Review into five constructs, namely Supply Chain Risk (SCR), Digital Financial Literacy (DFL), Enterprise Risk Management (ERM), Financial Risk Management (FRM), and Business Performance (BP), to obtain initial empirical evidence regarding how these capabilities and risks work in the specific context of modern coffee shops in Bogor City and become a basis for refining financial risk management models and strategies in further research.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Financial Risk Management in MSMEs

Risk is an integral part of business activities because every decision carries uncertainty. In MSMEs, risk is increasingly complex due to limited financial resources, managerial capabilities, information, and loss-absorbing capacity. Crovini et al. (2021) explain that risk management in SMEs needs to be integrated with decision-making, not

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simply an administrative activity after a loss occurs. From a financial perspective, risk encompasses conditions that can disrupt liquidity, profitability, working capital, and cash flow. Xiao et al. (2024) demonstrate that financial risk in SMEs is multidimensional, requiring comprehensive indicators to identify and assess it.

Financial Risk Management(FRM) is the process of identifying, assessing, responding to, controlling, and monitoring risks that affect a company's financial condition. Glowka et al. (2021) emphasized that risk management practices in small businesses are influenced by internal characteristics and owner involvement in decision-making. Arthur et al. (2025) demonstrated the importance of risk identification and analysis in determining responses to business uncertainty, while Shcherbak et al. (2026) linked financial risk management to financial resilience and business stability.

In modern coffee shops, FRM is crucial because operating costs are influenced by the prices of raw materials, labor, energy, distribution, and changes in demand. Fluctuations in the prices of coffee beans, milk, sugar, food ingredients, and packaging can increase the cost of goods sold and reduce margins. Therefore, FRM can be viewed as the capability to translate operational and market uncertainty into financial decisions through cost control, budgeting, working capital and cash flow management, reserve funds, margin evaluation, and risk response planning. This perspective aligns with Crovini et al. (2021), Arthur et al. (2025), and Shcherbak et al. (2026).

Supply Chain Risk and Financial Risk Management

*Supply Chain Risk*Supply chain disruption (SCR) is the risk resulting from uncertainty in the flow of materials, information, suppliers, distribution, and supply chain activities. Chowdhury et al. (2021) show that supply chain disruptions can impact supply, inventory, logistics, operational capacity, and sourcing decisions. In modern coffee shops, one important form of SCR is raw material price volatility, which can increase costs and impact margins. Bashiri et al. (2021) show that the coffee supply chain faces interacting risks that have both economic and sustainability consequences.

Risks also arise from supplier dependency and inventory risk. Suryawanshi and Dutta (2022) explain the importance of resilience, redundancy, and alternative procurement in addressing supply chain risks. Meanwhile, El Baz and Ruel (2021) show that supply chain risk management can increase resilience and robustness during disruptions. In SMEs, Dankyira et al. (2024) link supply chain disruptions to operational resilience, while Ul Akram et al. (2024) position resilience and agility as critical capabilities in addressing supply chain changes.

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In the context of a modern coffee shop, rising material prices, supplier delays, excess inventory, and shortages can directly impact costs, working capital, and revenue. Price monitoring, supplier evaluation, diversification of supply sources, safety stock, and the development of disruption scenarios can support more systematic financial management. Based on this argument, the higher the exposure to supply chain risk, the greater the need to develop FRM.

H1: Supply Chain Risk has an impact on Financial Risk Management in modern coffee shop businesses in Bogor City.

Digital Financial Literacy and Financial Risk Management

*Digital Financial Literacy*Digital Financial Literacy (DFL) is the ability to understand and use digital financial information, products, services, and technology. Yadav and Banerji (2024) explain that DFL develops with the use of fintech, digital payments, digital banking, and technology-based platforms. DFL encompasses digital financial knowledge, attitudes, skills, and behaviors. Kumar et al. (2023) show that skills, digital financial literacy, financial capability, and autonomy are related to the quality of financial decision-making.

For small businesses, DFL is important because transactions are increasingly integrated with digital payments, mobile banking, marketplaces, financial recording applications, and fintech. Uthaileang and Kiattisin (2023) demonstrated that DFL supports small entrepreneurs' ability to use digital financial services, while Hasan et al. (2023) demonstrated its link to the utilization of formal financial systems. Rahayu et al. (2023) found that digital financial inclusion and fintech can help informal MSMEs overcome the financing gap, while Ratmono et al. (2023) demonstrated that digitizing management accounting systems can provide information to support business management.

In conjunction with FRM, DFL allows coffee shop owners to more quickly monitor revenue and expenses, cash flow, cost changes, supplier payments, and liquidity pressures. Digital information can also be used to evaluate margins, project cash flow, and determine responses to raw material price increases. Thus, DFL can theoretically support the identification, evaluation, and mitigation of financial risks, as proposed by Kumar et al. (2023), Uthaileang and Kiattisin (2023), Hasan et al. (2023), Rahayu et al. (2023), and Yadav and Banerji (2024).

H2: Digital Financial Literacy influences Financial Risk Management in modern coffee shop businesses in Bogor City.

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Enterprise Risk Management and Financial Risk Management

Enterprise Risk Management(ERM) is an integrated approach to managing various risks through identification, assessment, response, control, and monitoring. Fraser et al. (2022) emphasize that ERM encompasses contextualization, governance, implementation, and risk evaluation. In SMEs, Glowka et al. (2021) show that internal business characteristics influence ERM implementation, so its effectiveness depends heavily on the owner's or manager's ability to integrate risk awareness into daily activities.

ERM begins with risk identification, followed by likelihood and impact analysis to determine response priorities. Arthur et al. (2025) demonstrate the importance of risk analysis in linking risk identification with risk response. Furthermore, mitigation and monitoring are necessary to reduce the impact of risks and assess environmental changes. Zhu et al. (2023) emphasize the importance of critical success factors in dynamic enterprise risk management in manufacturing SMEs. Jidda et al. (2025) also demonstrate that integrating ERM through risk management, mitigation, and internal risk management contributes to firm resilience and supply chain performance.

In this study, ERM is viewed as an internal capability that shapes FRM practices. Risk identification and evaluation can translate into decisions regarding reserve funds, purchasing budgets, inventory, alternative suppliers, and selling prices. Therefore, the more systematic ERM implementation, the stronger the foundation for FRM implementation in modern coffee shops.

H3: Enterprise Risk Management has an influence on Financial Risk Management in modern coffee shop businesses in Bogor City.

Financial Risk Management and Business Performance

*Business Performance*describes a business's ability to achieve financial and non-financial results, such as profitability, growth, efficiency, operational stability, and sustainability. Gungor et al. (2025) emphasize that SME performance is related to the achievement of financial and operational goals and the ability to adapt to uncertain conditions.

FRM can support business performance through cost control, cash flow management, and margin maintenance. In coffee shops, these practices can be implemented through evaluating material prices, labor and energy costs, inventory management, waste control, material substitution, and selling price adjustments. Shcherbak et al. (2026) showed that financial risk management plays a role in

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maintaining the financial resilience of small businesses. Padi et al. (2025) also found that financial literacy and entrepreneurial competencies are related to the financial performance of SMEs.

In the Indonesian context, Supramono et al. (2025) found that dynamic capabilities and financial behavior contribute to the recovery and sustainability of food and beverage MSMEs. Hanoum et al. (2025) showed that an organization's ability to combine internal and technological capabilities contributes to performance. These findings support the view that resource and risk management skills can help MSMEs adapt to changes in the business environment.

Thus, FRM not only serves to reduce potential losses but also supports performance through financial stability, efficiency, adaptability, and business sustainability. Based on these arguments, the fourth hypothesis is formulated as follows:

H4: Financial Risk Management has a positive effect on Business Performance in modern coffee shop businesses in Bogor City.

CONCEPTUAL FRAMEWORK

This research's conceptual framework is based on the perspective that Financial Risk Management (FRM) in modern coffee shops is formed through the interaction between external risks and internal capabilities. Crovini et al. (2021) emphasize the importance of integrating risk management with the characteristics and decision-making processes of SMEs. Supply Chain Risk (SCR) represents external risks in the form of price volatility, supply disruptions, supplier dependency, and inventory risk. Dankyira et al. (2024) show that supply chain disruptions can impact SMEs' operational capabilities and require a systematic response.

Internally, Digital Financial Literacy (DFL) represents the ability to use financial knowledge and technology to understand information and support decision-making. Kumar et al. (2023) demonstrate the relationship between DFL and financial decision-making, while Rahayu et al. (2023) demonstrate the relevance of digital finance for Indonesian MSMEs. Meanwhile, Enterprise Risk Management (ERM) represents an organization's capability to identify, evaluate, mitigate, and monitor risks. Zhu et al. (2023) emphasize the importance of supporting factors in dynamic ERM, while Jidda et al. (2025) demonstrate the contribution of ERM integration to resilience and performance.

FRM is positioned as a mechanism that connects these factors to Business Performance (BP) through financial planning, cost control, cash flow management,

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provision of reserves, margin evaluation, and response to price changes. Shcherbak et al. (2026) demonstrated the relevance of financial risk management to the financial resilience of small businesses.

The conceptual framework in Figure 1 is an extension of the systematic literature review (SLR) framework. The five strategies in the SLR—cost control, technology-based price volatility prediction, financing strengthening, organizational capacity strengthening, and ecosystem collaboration—are operationalized into five constructs: SCR, DFL, ERM, FRM, and BP. SCR represents external risk, DFL and ERM represent internal capabilities, FRM serves as a financial risk management mechanism, and BP represents a business outcome. Therefore, this model is used to obtain initial empirical evidence regarding factors related to FRM and their implications for the performance of modern coffee shops in Bogor City.

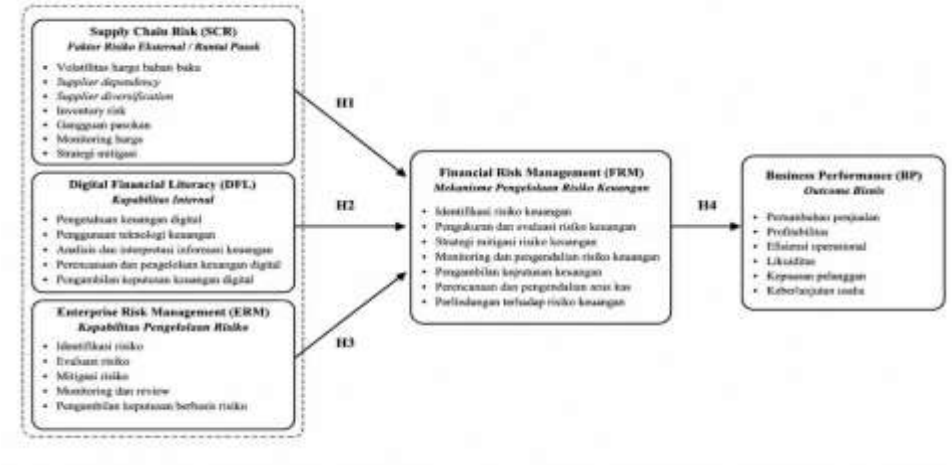


Figure 2. Conceptual Framework of the Research

Source: Processed by researchers (2026)

Variable Description

SCR :*Supply Chain Risk*(External Risk Factors/Supply Chain)
DFL :*Digital Financial Literacy*(Internal Capabilities)
ERM :*Enterprise Risk Management*(Risk Management Capability)
FRM :*Financial Risk Management*(Financial Risk Management Mechanism)
BP :*Business Performance*(Outcome/Business Performance)

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METHODOLOGY

This study uses a quantitative approach with a Sequential Exploratory Mixed Method design, consisting of qualitative and quantitative stages. This article specifically focuses on the quantitative stage used to obtain initial empirical evidence regarding the relationship between Supply Chain Risk (SCR), Digital Financial Literacy (DFL), and Enterprise Risk Management (ERM) to Financial Risk Management (FRM), as well as the relationship between FRM and Business Performance (BP). The empirical model tested is an operational development of the conceptual framework generated through a previous Systematic Literature Review (SLR). The framework is operationalized into five constructs, namely SCR, DFL, ERM, FRM, and BP. The study uses a cross-sectional design, with data collection conducted over a single observation period of owners or managers of modern coffee shops in Bogor City.

The research data comprises primary data collected using a structured questionnaire from owners or managers of modern coffee shops in Bogor City. The research instrument was used to obtain information on business characteristics and measure five research constructs: SCR, DFL, ERM, FRM, and BP. The instrument consists of 50 statements, with each construct having ten items grouped into five dimensions. All indicators were measured using a five-level Likert scale. The development of perception-based indicators was carried out with a clear theoretical basis in mind, as explained by Hair and Alamer (2022). Prior to analysis, the data underwent a screening process that included checking the completeness of answers, respondents' compliance with the research criteria, coding consistency, and data readiness. Hair et al. (2021) emphasized the importance of data checking before testing the SEM model, while Ringle et al. (2023) emphasized transparency in the data preparation and processing process, and Legate et al. (2023) emphasized the importance of data quality and model specification accuracy in PLS-SEM estimation. Further data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) through measurement model and structural model evaluation. Measurement model evaluation included outer loading, Cronbach's Alpha, rho_A, Composite Reliability (CR), Average Variance Extracted (AVE), and discriminant validity using Heterotrait-Monotrait Ratio (HTMT). Structural model evaluation was used to assess the model's explanatory power, interconstruct relationships, effect size (f^2), and potential collinearity before hypothesis testing. Hair et al. (2021), Hair et al. (2024b), and Sarstedt et al. (2024) were used as the basis for evaluating and interpreting PLS-SEM results.

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The study population comprised modern coffee shop owners operating in Bogor City. The unit of analysis was the modern coffee shop, while the unit of observation was the owner or primary manager who understands raw material procurement, financial transactions and management, cash flow, supplier relationships, business risks, and business performance. In this study, a modern coffee shop refers to a coffee-based beverage provider that operates a regular commercial activity and has relatively structured business management characteristics, such as having a business location, raw material suppliers, transaction recording, inventory management, and decision-making related to pricing, costs, and finances. Sampling used a non-probability sampling approach with a purposive sampling approach. Respondents were at least the owner or manager of a modern coffee shop operating in Bogor City and understood raw material procurement, the use of financial services or technology, risk management, and business performance conditions. The final sample size used in the analysis was 100 respondents. The sample size was determined taking into account model complexity, the number of predictor constructs, and the model's statistical ability to detect the relationships tested, as described by Hair et al. (2021) and Hair and Alamer (2022). This sample size was used to estimate the PLS-SEM model with three constructs that directly predict FRM, namely SCR, DFL, and ERM, and FRM as a direct predictor of BP. Legate et al. (2023) explained the use of PLS-SEM in models with several latent constructs and indicators simultaneously, while Ringle et al. (2023) emphasized the need for transparent reporting of dataset characteristics and analysis procedures.

The research procedure began with the development of an empirical model based on the conceptual framework obtained from the previous Systematic Literature Review. This framework was then operationalized into five research constructs: SCR, DFL, ERM, FRM, and BP, each of which was measured through indicators in the questionnaire. The next stage was carried out by determining the population and selecting respondents using purposive sampling according to the research criteria. A structured questionnaire was then administered to owners or managers of modern coffee shops in Bogor City to obtain data on business characteristics and measurement of the five research constructs. The collected data were then examined through a screening process to ensure completeness of answers, respondent suitability, coding consistency, and data readiness. A total of 100 responses were declared to meet the criteria and were used as the final dataset. The analysis stage was carried out using PLS-SEM through evaluation of the measurement model and the structural model. Evaluation of the measurement model was used to assess the validity and reliability of the constructs,

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while evaluation of the structural model was used to examine the relationship between SCR, DFL, and ERM with FRM and the relationship between FRM and BP. The test results are then interpreted based on the path coefficient, significance of the relationship, R^2, f^2, quality of the measurement model, and potential collinearity as a basis for obtaining initial empirical evidence regarding financial risk management strategies in dealing with fluctuations in raw material prices in modern coffee shops in Bogor City.

RESULTS AND DISCUSSION

Respondent Profile

Table 1. Respondent Profile

Characteristics	Category	Frequency	Percentage (%)
Length of business	< 2 years	38	38.0
	2–5 years	48	48.0
	> 5 years	14	14.0
Number of employees	1–5 people	62	62.0
	6–10 people	21	21.0
	> 10 people	17	17.0
Turnover per month	< Rp. 25 million	54	54.0
	Rp. 25–50 million	27	27.0
	> Rp. 50 million	19	19.0

Source: Processed research data, 2026.

Based on the length of business, 48 respondents (48.0%) have been running their business for 2–5 years, 38 respondents (38.0%) less than two years, and 14 respondents (14.0%) more than five years. Based on the number of employees, 62 respondents (62.0%) have 1–5 employees, 21 respondents (21.0%) have 6–10 employees, and 17 respondents (17.0%) have more than 10 employees. Meanwhile, based on turnover, 54 respondents (54.0%) have a turnover of less than IDR 25 million per month, 27 respondents (27.0%) between IDR 25 million–IDR 50 million, and 19

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respondents (19.0%) more than IDR 50 million per month. In general, the majority of respondents are businesses with 2–5 years of experience, 1–5 employees, and a turnover of less than IDR 25 million per month.

Measurement Model Evaluation

1. Outer Loading

Table 2. Outer Loading Summary

Construct	Number of Indicators	Lowest Outer Loading	Highest Outer Loading	Information
BP	10	0.840	0.919	Fulfil
DFL	10	0.758	0.934	Fulfil
ERM	10	0.824	0.936	Fulfil
FRM	10	0.720	0.931	Fulfil
SCR	10	0.797	0.919	Fulfil

Source: PLS-SEM data processing results, 2026.

These results indicate that all indicators have outer loading values that meet the 0.70 threshold. The indicator with the lowest value is FRM3_1 at 0.720, which is still above the acceptable limit. Therefore, all 50 indicators were retained in the measurement model.

2. Reliability and Average Variance Extracted

Table 3. Reliability and Convergent Validity

Construct	Cronbach's Alpha	rho_A	Composite Reliability	AVE
BP	0.972	0.973	0.975	0.797
DFL	0.959	0.961	0.965	0.734
ERM	0.963	0.964	0.968	0.752
FRM	0.955	0.957	0.962	0.716
SCR	0.964	0.965	0.968	0.754

Source: PLS-SEM data processing results, 2026.

The test results show that Cronbach's Alpha, rho_A, and Composite Reliability of all constructs are above 0.70, thus indicating high internal consistency. The AVE values for BP (0.797), DFL (0.734), ERM (0.752), FRM (0.716), and SCR (0.754) are also all

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above 0.50, thus meeting the convergent validity criteria. However, the relatively high reliability values need to be observed carefully because they can indicate similarities between indicators. Therefore, these results need to be further considered together with discriminant validity testing, especially the HTMT value.

3. Discriminant Validity

Table 4. Heterotrait-Monotrait Ratio (HTMT)

Construct	BP	DFL	ERM	FRM	SCR
BP	—				
DFL	0.826	—			
ERM	0.559	0.619	—		
FRM	0.675	0.714	0.925	—	
SCR	0.831	0.992	0.621	0.721	—

Source: Results of research data processing, 2026.

Summary of Discriminant Validity Test Results

The HTMT test results show that most construct pairs have values below 0.90, but ERM–FRM (0.925) and DFL–SCR (0.992) exceed this limit. This indicates that discriminant validity for both pairs has not been fully met and there is empirical closeness between the constructs. Therefore, the results of the structural model, especially the relationships involving these pairs, need to be interpreted with caution.

Structural Model Evaluation

1. Collinearity Assessment

Table 5. Collinearity Test Results Based on Variance Inflation Factor (VIF) Values

Predictor Construct	Endogenous Construct	VIF	Criteria < 5.00	Interpretation
SCR	FRM	10,957	Does not meet the	High collinearity
DFL	FRM	10,937	Does not meet the	High collinearity
ERM	FRM	1,577	Fulfil	There is no collinearity problem

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FRM	BP	1,000	Fulfil	There is no collinearity problem

Source: Results of research data processing, 2026.

The evaluation results show that the VIF of ERM against FRM is 1.577 and the VIF of FRM against BP is 1.000, so both are below the limit of 5.00. In contrast, the VIF of SCR (10.957) and DFL (10.937) show high collinearity in predicting FRM, in line with the HTMT DFL–SCR value of 0.992. This condition can affect the stability of the estimated contribution of each predictor, so the relationship between SCR and DFL against FRM needs to be interpreted carefully.

2. Coefficient of Determination (R^2)

Table 6. Coefficient of Determination

Endogenous Variables	R^2	Adjusted R^2
Financial Risk Management (FRM)	**0.829**	**0.823**
Business Performance (BP)	**0.426**	**0.420**

Source: PLS-SEM data processing results, 2026.

The analysis results show that FRM has an R^2 value of 0.829, so that SCR, DFL, and ERM simultaneously explain 82.9% of the variation in FRM, while the remaining 17.1% is related to other factors outside the model. Meanwhile, BP has an R^2 value of 0.426, which indicates that FRM explains 42.6% of the variation in BP, while the remaining 57.4% is related to other factors outside the model. Although the model's explanatory power for FRM is quite high, these results do not indicate that all predictors have a significant individual relationship.

3. Effect Size (f^2)

Table 7. Effect Size (f^2) Test Results

Connection	f^2	Interpretation
SCR to FRM	0.023	Small effect
DFL versus FRM	0.001	Effects can be ignored
ERM versus FRM	**2,034**	Big effect
FRM against BP	**0.737**	Big effect

Source: Results of research data processing, 2026.

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The evaluation results show that SCR has an f² value of 0.023, which is classified as a small effect, while the DFL of 0.001 indicates a negligible contribution to FRM. In contrast, ERM has an f² of 2.034 and FRM on BP of 0.737, both of which indicate a large effect. Thus, ERM provides the largest individual contribution to FRM, while FRM has a large effect on BP. The f² results of SCR and DFL still need to be considered alongside the VIF findings because both experience high collinearity.

Hypothesis Testing

Table 8. Hypothesis Testing Results

Hypothesis	Connection	β	t-statistic	p-value	Results
H1	SCR → FRM	0.180	0.596	0.551	Not supported
H2	DFL → FRM	0.077	0.255	0.799	Not supported
H3	ERM → FRM	**0.733**	**10,677**	**<0.001**	**Supported**
H4	FRM → BP	**0.653**	**10,990**	**<0.001**	**Supported**

Source: PLS-SEM data processing results, 2026.

The test results indicate that H1 and H2 are not supported because the relationship between SCR and FRM (β = 0.180; p = 0.551) and DFL and FRM (β = 0.077; p = 0.799) is not significant. This insignificance needs to be considered together with the VIF values of SCR (10.957), DFL (10.937), and HTMT DFL–SCR (0.992) which indicate high collinearity and empirical closeness.

In contrast, H3 and H4 are supported. ERM has a positive and significant effect on FRM (β = 0.733; p < 0.001), while FRM has a positive and significant effect on BP (β = 0.653; p < 0.001). However, the ERM–FRM relationship requires careful attention because the HTMT value is 0.925. Overall, two of the four hypotheses are empirically supported, so the model provides partial initial evidence regarding the relationships between the tested constructs.

Summary of Initial Empirical Evidence of Financial Risk Management Strategy Model

Based on the overall test results, this study provides initial empirical evidence regarding the relationship between constructs in financial risk management strategies in modern coffee shops in Bogor City. ERM → FRM and FRM → BP obtained statistical

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support, with path coefficients of 0.733 and 0.653, respectively, and effect sizes of 2.034 and 0.737. Meanwhile, SCR → FRM and DFL → FRM did not obtain statistical support.

The model explained 82.9% of the variation in FRM and 42.6% of the variation in BP. However, discriminant validity was not fully met for ERM–FRM (HTMT 0.925) and DFL–SCR (HTMT 0.992), accompanied by high collinearity in SCR (VIF 10.957) and DFL (VIF 10.937). Therefore, the research findings partially support the model structure, while the relationship between SCR and DFL on FRM still requires further testing through instrument refinement and a wider sample.

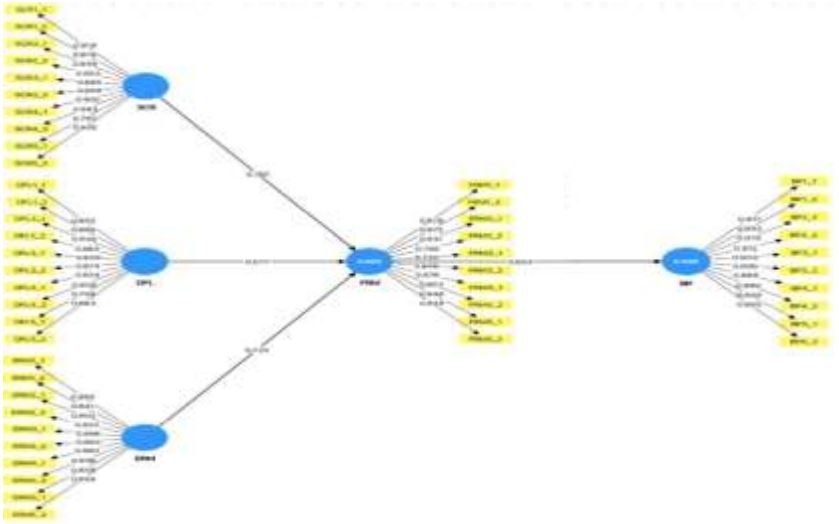


Figure 3. Initial Empirical Evidence of the Financial Risk Management Strategy Model

Source: Results of PLS-SEM data processing using SmartPLS, 2026.

As shown in Figure 3, the empirical structure that has received statistical support is indicated by the positive relationships ERM → FRM and FRM → BP. Meanwhile, the relationships SCR → FRM and DFL → FRM have not received statistical support. The path coefficient and p-value are listed for each relationship, while the R^2 value is displayed for the endogenous construct.

DISCUSSION

The results of the study indicate that Supply Chain Risk (SCR) and Digital Financial Literacy (DFL) do not have a significant relationship with Financial Risk Management (FRM), while Enterprise Risk Management (ERM) has a positive and significant

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relationship with Business Performance (BP). These findings provide initial empirical evidence that financial risk management is more related to internal capabilities, particularly ERM, in supporting risk management and business performance.

The model explained 82.9% of the variation in FRM and 42.6% of the variation in BP. However, these results cannot be considered full validation due to limitations in discriminant validity and collinearity based on HTMT and VIF values. Therefore, the research findings should be viewed as initial empirical evidence that still requires further testing with model, instrument, and sample refinements.

1. The Influence of Supply Chain Risk on Financial Risk Management

The test results for H1 show that Supply Chain Risk has a positive path coefficient of β = 0.180, but it is not significant for Financial Risk Management, with a t-statistic of 0.596 and a p-value of 0.551. Thus, H1 does not receive statistical support. Conceptually, SCR is related to raw material price uncertainty, supplier dependence, availability, inventory, quality, and continuity of supply. Chowdhury et al. (2021) show that supply chain disruptions can affect supply, inventory, logistics, operational capacity, and sourcing decisions, while Bashiri et al. (2021) show the existence of risk linkages in the coffee supply chain that can have economic consequences.

In the context of a modern coffee shop, supply chain risks can first be addressed through operational decisions, such as adjusting purchasing, changing suppliers, managing inventory, or using substitute materials, before being translated into FRM policies. This aligns with Suryawanshi and Dutta (2022) and El Baz and Ruel (2021), who emphasize the importance of resilience, procurement alternatives, and supply chain risk management. Therefore, SCR does not automatically result in changes to FRM and needs to be translated into financial consequences such as changes in costs, margins, working capital, or cash flow.

However, the insignificance of H1 does not indicate that SCR is irrelevant, as the SCR VIF of 10.957 indicates high collinearity. Therefore, this result is more accurately understood as the lack of statistical support for the direct influence of SCR in this study's model and sample.

2. The Influence of Digital Financial Literacy on Financial Risk Management

The results of the H2 test show that Digital Financial Literacy has a path coefficient of β = 0.077, t-statistic = 0.255, and p-value = 0.799, so H2 does not receive statistical support. This finding indicates that the ability to use digital financial technology and information does not yet have a significant direct relationship with FRM.

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This situation can arise because the use of mobile banking, digital payments, or financial recording applications is not necessarily directed at strategic activities such as cash flow projections, cost analysis, reserve funds, or risk simulations. Kumar et al. (2023) show that digital financial literacy requires the ability to understand and apply financial information in decision-making. Uthaileang and Kiattisin (2023) and Hasan et al. (2023) demonstrate the benefits of DFL in the use of digital financial services, while Rahayu et al. (2023), Ratmono et al. (2023), and Affandi et al. (2024) demonstrate the relationship between digitalization, fintech, accounting information, and business performance.

However, DFL is more appropriately viewed as a supporting capability that provides tools and information, while its application in FRM requires managerial capabilities and risk management processes. These results should also be considered in conjunction with the HTMT DFL–SCR of 0.992 and the DFL VIF of 10.937, which indicate empirical closeness and high collinearity. Therefore, the non-significant result of DFL → FRM cannot be interpreted as implying that DFL is irrelevant in financial risk management.

3. The Influence of Enterprise Risk Management on Financial Risk Management

The results of the H3 test show that Enterprise Risk Management is positively and significantly related to FRM, with $\beta = 0.733$, t-statistic = 10.677, and p-value < 0.001. H3 obtained statistical support and had the largest effect size on FRM, namely $f^2 = 2.034$.

These findings indicate that the ability to identify, evaluate, respond to, mitigate, and monitor risks is strongly linked to financial risk management practices. Fraser et al. (2022) emphasize that ERM integrates risk management into an organization's management system. In modern coffee shops, ERM can be implemented through identifying raw materials vulnerable to price fluctuations, evaluating their impact on costs and margins, determining mitigation measures, and conducting regular monitoring.

Glowka et al. (2021) showed that ERM implementation in small businesses is influenced by internal characteristics and owner involvement, while Arthur et al. (2025) emphasized the importance of risk analysis in linking risk identification and response. Zhu et al. (2023) and Jidda et al. (2025) also emphasized the importance of dynamic and integrated ERM in addressing changing risks and increasing business resilience. However, the ERM → FRM relationship needs to be interpreted with caution because the HTMT of 0.925 indicates that the empirical separation of the two constructs is not yet fully optimal.

4. The Influence of Financial Risk Management on Business Performance

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The results of the H4 test show that FRM has a positive and significant relationship with Business Performance, with β = 0.653, t-statistic = 10.990, and p-value < 0.001. H4 obtained statistical support with an effect size of 0.737 which indicates a large effect.

These findings indicate that FRM practices are related to business performance, particularly through the management of cash flow, costs, margins, working capital, and responses to changes in raw material prices. Responses can include waste control, inventory management, supplier renegotiations, the use of substitute materials, or price adjustments. Shcherbak et al. (2026) demonstrated the relationship between FRM and the financial resilience and stability of small businesses, while Padi et al. (2025) demonstrated the importance of financial literacy and entrepreneurial competencies in supporting performance when implemented through effective management mechanisms.

Supramono et al. (2025) and Hanoum et al. (2025) also demonstrated the importance of internal capabilities, financial behavior, and technology in supporting business performance and sustainability. Thus, FRM can be viewed as part of a business's ability to maintain financial stability and business continuity. However, because the study used cross-sectional data, the FRM → BP relationship is more appropriately understood as a positive relationship within the study sample and not as evidence of causality.

5. Integration of Initial Empirical Evidence with the SLR Framework

This research is the initial empirical testing phase of the conceptual framework developed through a Systematic Literature Review (SLR). The framework encompasses cost control, technology-based price volatility prediction, financing enhancement, organizational capacity enhancement, and ecosystem collaboration. These elements are operationalized into the constructs of SCR, DFL, ERM, FRM, and BP.

Empirical results show that ERM → FRM and FRM → BP receive statistical support, while SCR → FRM and DFL → FRM do not. These findings indicate that external factors and digital capabilities do not automatically translate into changes in financial risk management and require internal mechanisms to translate risk information into financial decisions.

Thus, cost control strategies and financing strengthening can be reflected in FRM, volatility prediction and response are related to SCR, organizational capacity strengthening is reflected through ERM, and collaboration with suppliers and the business ecosystem can support both SCR and ERM. Initial empirical evidence

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suggests that these elements do not have the same strong direct relationship in the research model.

6. Implications of Financial Risk Management Strategies in Modern Coffee Shops

Based on the overall results, the financial risk management strategy in modern coffee shops can be understood as a process that connects risk identification, evaluation, response and mitigation, financial management, and performance monitoring. Business owners need to identify key risks, such as changes in raw material prices, supplier dependency, quality, and distribution disruptions, then assess their impact on costs, margins, working capital, and cash flow.

Furthermore, businesses can plan their budgets, determine working capital and reserve fund requirements, and implement mitigation strategies such as supplier diversification, inventory management, price renegotiations, the use of substitute materials, waste control, and selling price adjustments. Monitoring raw material prices, operating costs, margins, cash flow, inventory, and supplier conditions is also necessary because risk profiles can change.

Digital technology can be used to support transaction recording, cash flow monitoring, and the provision of financial information. However, because DFL has not demonstrated a significant direct relationship with FRM, technology utilization needs to be integrated with ERM so that digital information can support risk identification, evaluation, and monitoring. Therefore, a financial risk management strategy requires not only the ability to identify risk sources but also internal mechanisms to translate risk information into financial decisions.

Research Implications

1. Theoretical Implications

This study provides theoretical implications for the development of Financial Risk Management (FRM) literature in MSMEs, particularly modern coffee shops facing fluctuating raw material prices. The results show that Supply Chain Risk (SCR) and Digital Financial Literacy (DFL) do not have a significant relationship with FRM, while Enterprise Risk Management (ERM) has a positive and significant relationship with FRM. These findings provide initial evidence that financial risk management is more related to internal capabilities in identifying, evaluating, responding to, and monitoring risks than simply the level of external risk exposure or the ability to use digital technology.

The positive and significant relationship between FRM and Business Performance (BP) indicates that FRM can be a managerial mechanism related to

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business performance through budget planning, cost control, cash flow management, reserve funds, and financial decisions. Overall, this study integrates SCR, DFL, ERM, FRM, and BP into one framework in the context of a modern coffee shop. However, this contribution is still preliminary empirical because the SCR–FRM and DFL–FRM relationships are not yet significant and there are still issues of discriminant validity and collinearity.

2. Managerial Implications

The research findings demonstrate the importance of systematic risk management to translate changes in the business environment into financial decisions. Modern coffee shop owners can identify and monitor raw material and supplier risks based on price, quality, availability, and continuity of supply. These identification results can then be linked to purchasing budgets, working capital, cost control, margin targets, cash flow, and reserve funds.

Although SCR has not shown a significant direct relationship with FRM, supplier diversification can still be used as a mitigation measure. Business owners can compare suppliers based on price, quality, continuity, minimum purchase quantities, and delivery time. Meanwhile, digital technology can be used not only for recording transactions but also to monitor costs, margins, cash flow, inventory, and working capital requirements.

Business owners can also develop scenarios for dealing with rising raw material prices by renegotiating with suppliers, managing purchasing and inventory, reducing waste, using substitute materials, adjusting products, or adjusting selling prices. Continuous monitoring of raw material prices, operating costs, margins, cash flow, inventory, liquidity, and supplier conditions is necessary to evaluate the effectiveness of risk mitigation.

3. Policy Implications

The research findings provide considerations for the Bogor City Government, regional government agencies, financial institutions, universities, and MSME support institutions to strengthen their risk management and financial management capacity. Training programs can include practical FRM skills, such as risk identification, price increase impact analysis, budgeting, cost control, cash flow management, reserve funds, margin evaluation, and financial scenario development.

Local governments and supporting institutions can develop raw material pricing information systems and direct MSME digitalization toward data utilization for financial decisions. Support can also be provided through strengthening supplier networks, such as supplier databases, business forums, distributor partnerships, and joint purchasing.

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Universities can provide support through data-driven mentoring in the form of risk register development, cost analysis, cash flow projections, price change simulations, and mitigation strategy evaluations.

Overall, strengthening MSME resilience to raw material price fluctuations can be directed at integrating risk management, financial management, information digitization, and supply chain resilience. However, because this research represents initial empirical evidence in modern coffee shops in Bogor City, the policy implications still need to be tested on a broader MSME population and context.

CONCLUSION

This study provides initial empirical evidence regarding financial risk management strategies in modern coffee shops in Bogor City in facing fluctuations in raw material prices. The test results show that Enterprise Risk Management (ERM) is positively and significantly related to Financial Risk Management (FRM), while Supply Chain Risk (SCR) and Digital Financial Literacy (DFL) have not shown a significant relationship with FRM. Furthermore, FRM is positively and significantly related to Business Performance (BP), so that financial risk management is related to the business's ability to maintain performance through managing costs, cash flow, margins, working capital, and responses to changes in raw material prices. The model is able to explain 82.9% of the variation in FRM and 42.6% of the variation in BP. However, the results of the study should be understood as preliminary evidence because limitations were found in discriminant validity, particularly the relationship between ERM and FRM with a HTMT value of 0.925 and DFL and SCR with a HTMT value of 0.992. In addition, the VIF SCR of 10.957 and DFL of 10.937 indicate high collinearity which can affect the stability of the estimated relationship between the two constructs.

Future research is recommended to expand the sample size and scope, involving coffee shops from different regions, and refine the SCR, DFL, and ERM indicators to further clarify construct separation and mitigate collinearity issues. A longitudinal design can also be considered to gain a stronger understanding of changes in financial risk management during raw material price fluctuations. Practically, coffee shop owners or managers can strengthen FRM through the systematic implementation of ERM, from risk identification and evaluation to mitigation and monitoring. These steps can be supported by cost control, cash flow and inventory management, provision of reserve funds, supplier diversification, monitoring raw material prices, and the use of digital technology to support financial information and decision-making.

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