Sensitivity Analysis and Optimal Funding Strategy for Catering MSMEs in Facing Raw Material Price Fluctuations to Increase Profitability

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ARTICLE INFO

ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs), particularly in the catering sector, often experience fluctuations in raw material prices, which directly affect their cost structures and profitability. This condition poses a challenge for MSMEs in optimizing financing to maintain financial stability and business continuity. For this reason, innovation is needed in the form of sensitivity analysis and optimal funding source analysis to overcome the challenges MSMEs face. Aim: To analyze the impact of raw material price fluctuations on MSME profitability and to determine the optimal financing structure through sensitivity analysis and evaluation of funding sources. Method: Sensitivity analysis was conducted using raw material price data from 2020 to 2023 to assess changes in net profit. Gross profit and net profit were calculated based on sales revenue, cost of goods sold, and operating costs. The optimal financing source was assessed by calculating the Weighted Average Cost of Capital (WACC) and evaluating profitability using the Net Present Value (NPV) and the Internal Rate of Return (IRR). The results indicate the attainment of a break-even point where total revenue equals total costs, providing a basis for MSMEs to formulate appropriate pricing strategies to achieve profitability. Furthermore, the analysis identifies the most efficient financing structure with the lowest cost of capital, enhancing financial performance under varying economic scenarios. Conclusion: Sensitivity analysis and financing evaluation help MSMEs in the catering sector manage price fluctuations, improve financial decisions, and maintain business sustainability under economic uncertainty.

Keywords: Catering Sector; Raw Material Price Fluctuations; Sensitivity Analysis; Optimal Funding Strategy; Profitability

INTRODUCTION

Besides the contribution of large-scale industries, small industries such as Micro, Small, and Medium Enterprises (MSMEs). MSMEs are one of the sectors that significantly contribute to driving Indonesia's economic growth. This is because SMEs have a very high absorption capacity for labor and are close to the small people. Food, beverages, and household appliances are manufactured by the different existing MSMEs (Hasugian et al., 2020). The SMEs have contributed to the growing Gross Domestic Product for five consecutive years. The Ministry of Cooperatives and Small and Medium Enterprises witnesses increased contributions within the sector from 57.84% to 60.34%. It has also enhanced employment absorption in the last five years from 96.99 percent to 97.22 percent (Waruk et al., 2023). Data shows that MSMEs in Indonesia have contributed a great deal to the economy, but MSMEs continue to face many obstacles in their development, one of the factors being that half of them fail within the first three years. In the global production cycle in 2018, the contribution of MSMEs was very low, at only 0.8%, totaling non-oil and gas export to 14%, while the contribution of micro-enterprises was only 1.22%. This showed that it is very hard for MSMEs, particularly the micro-enterprises, to develop into larger-scale businesses (Mawuntu & Aotama, 2023).

This condition is a challenge for MSMEs in managing financing optimally to maintain financial stability and business continuity. For this reason, innovation is needed in the form of schemes for sensitivity analysis and the analysis of optimal funding sources to overcome the challenges MSMEs face. The sensitivity analysis scheme is a method for evaluating changes in net profit before and after fluctuations in raw material prices from historical data. Sensitivity analysis of the cost of production calculations conducted by the MSMEs of *Mie Ayam Kembar* in Deliserdang shows that it does not yet reflect the actual situation, so the budget and selling price set by the MSMEs do not depict the profit desired by the owner of 50% (Nazah, 2024). Then, the result of sensitivity analysis research on furniture SMEs in Bantul presented evidence that calculations using the full costing method resulted in production costs that were more valid and accurate since the cost components calculated were more complete when compared with those made by the firm (Rizqi & Rusdianto, 2023). Meanwhile, the sensitivity analysis conducted shows that the Mochi Cake MSMEs in Medan Selayang are not feasible for investment if there is an increase in total production costs and a decrease in revenue of 10%, 11%, and 12% (Hasugian et al., 2020). Thus, the need for greater emphasis on understanding and managing production costs more effectively, which can be the key to success for businesses in the catering industry and the culinary sector as a whole (Situngkir et al., 2024).

Furthermore, one of the factors that determines the long-term competitiveness of MSMEs is the strength of their capital structure. Decisions regarding funding sources used to strengthen a firm's capital structure should not be viewed as simple financial choices, as they carry significant implications for future financial performance and business sustainability. Therefore, the determination of an optimal funding scheme is essential to support business continuity. In this study, the minimum cost of capital approach is applied through the calculation of the Weighted Average Cost of Capital (WACC). Previous studies have highlighted the importance of optimal funding decisions, such as investment analysis results indicating that a Sharia business unit may not be feasible for separation when all financing costs are fully charged to the unit itself (Wulandari et al., 2017). Based on this background, this research is conducted as a case-based analytical study focusing on a single catering MSME, namely Rains Catering. The sensitivity analysis and optimal funding evaluation presented in this study are therefore context-specific, reflecting the unique operational, cost, and financial characteristics of the selected MSME. The results related to Net Present Value (NPV), Internal Rate of Return (IRR), break-even point, and optimal capital structure should not be interpreted as generalizable to all catering MSMEs. Instead, this study aims to provide an in-depth analytical framework that illustrates how sensitivity analysis

and capital structure evaluation can be applied at the firm level. The findings are intended to serve as a practical reference for MSME owners, practitioners, and researchers in understanding decision-making processes related to pricing strategies and financing under raw material price fluctuations. While the conclusions are limited to the specific case examined, the analytical approach may be adapted and tested in future studies involving a broader sample of MSMEs to improve external validity and generalizability.

METHODS

This research is quantitative with a descriptive-analytical approach. The quantitative approach is used to numerically analyze MSME financial data, specifically to assess the impact of raw material price fluctuations on profitability and to determine optimal funding sources. The descriptive approach is used to describe the financial condition of MSMEs in the catering sector, while the analytical approach is used to evaluate the relationship between cost, revenue, and funding structure variables. The object of this research is the cost structure, profitability, and funding sources of MSMEs in the catering sector. The research subjects are MSMEs in the catering sector that have complete financial data and are actively operating during the research period. The research focuses on the ability of MSMEs to manage business financing amidst fluctuations in raw material prices. This research uses secondary data obtained from: 1) Historical data on the prices of primary raw materials for catering MSMEs for the 2020–2023 period; 2) MSME financial reports, including revenue reports, production costs, operational costs, and funding structures; 3) Supporting literature in the form of textbooks, scientific journals, and official publications relevant to financial management and MSMEs. The variables analyzed in this study include: 1) Raw material prices, as a factor influencing the cost of goods sold; 2) Cost of goods sold (BPP), which consists of direct raw material costs and production costs; 3) Fixed and variable costs, as components of total costs; 4) Sales revenue, as a source of income for MSMEs; 5) Gross profit and net profit, as indicators of profitability; 6) Funding structure, consisting of debt and equity; 7) Cost of capital, as measured by the Weighted Average Cost of Capital (WACC).

Data Analysis Techniques
1. **Sensitivity Analysis**
   Sensitivity analysis is used to measure the impact of changes in raw material prices on the net profit of MSMEs. The analysis steps are as follows:
   a. Calculate gross profit as the difference between sales revenue and cost of goods sold.
   b. Calculate net profit as the difference between gross profit and fixed and variable costs.
   c. Analyze changes in net profit before and after raw material price fluctuations based on historical data.
   d. Determine the level of change in raw material prices that is tolerable without causing a loss.

2. **Break-Even Analysis**
   Break-even analysis is used to determine the minimum revenue level that must be achieved so that MSMEs do not experience losses. The break-even point is calculated by comparing total costs with revenue, thus providing a basis for determining optimal selling prices and production volumes.

3. **Optimal Funding Source Analysis**
   A funding source analysis is conducted to determine the combination of debt and equity that results in the minimum cost of capital. The analysis stages include:
   a. Calculating the cost of debt and cost of equity;
   b. Calculating the Weighted Average Cost of Capital (WACC) based on the proportion of debt and equity;

   c. Comparing several alternative funding structures to determine the structure with the lowest WACC.

4. **Financial Feasibility Analysis**

The financial feasibility analysis is conducted using the following indicators:
a. Net Present Value (NPV), to assess the present value of the business's net cash flows;
b. Internal Rate of Return (IRR), to measure the rate of return on investment.

The analysis is conducted using two scenarios, an optimistic scenario and a pessimistic scenario, to illustrate the best and worst-case scenarios that MSMEs might face due to fluctuations in raw material prices and changes in income. The research procedure was carried out through several stages:
a. Collecting historical raw material price data and MSME financial reports;
b. Processing cost and revenue data to calculate gross and net profit;
c. Conducting sensitivity analysis and break-even analysis;
d. Calculating WACC and evaluating the financing structure;
e. Financial feasibility analysis using NPV and IRR;
f. Interpreting the analysis results to formulate managerial implications for MSMEs in the catering sector.

5. **Result Presentation Techniques**

The analysis results are presented in tables and descriptive sections to facilitate interpretation and conclusion drawing. The presentation of the results focuses on the relationship between raw material price fluctuations, profitability, and MSME financing decisions.

RESULTS AND DISCUSSION

Rains Catering MSMEs Data

Table 1. Direct Raw Materials for Rains Catering MSMEs.

Information	Quantity	Total
Rice	13kg	IDR195,000
Chicken	25 tail	IDR800,000
Vermicelli	1kg	IDR24,000
Cabbage	1kg	IDR9,000
Whitecabbage	1kg	IDR16,000
Pakchoi	1kg	IDR11,000
Carrots	1kg	IDR18,000
EarMushrooms	500 gr	IDR14,000
Meatballs	1kg	IDR20,000
Coconut	8fruit	IDR48,000
RedChilli	1kg	IDR70,000
Cloves	1kg	IDR80,000
Tomatoes	1kg	IDR6,000
ShrimpPaste	6fruit	IDR12,000
Garlic	1kg	IDR30,000
Shallots	1kg	IDR20,000
Salad+Lemongrass	1pouch	IDR10,000
Galangal+Ginger+Turmeric	1pouch	IDR30,000
Candlenuts+Coriander	1pouch	IDR30,000
Royco+Sugar+Salt	1pouch	IDR15,000
Crackers	1kg	IDR30,000
Cucumber	2kg	IDR20,000

Oil	4liter	IDR60,000
Total		IDR1,568,000

Source: Processed primary data

The various direct material costs incurred by UMKM Rains Catering during a certain period of time are shown in Table 1. The table shows that the most common raw material is rice, followed by chicken. The total amount spent on raw materials is IDR 1,568,000. This shows that raw material costs play a big role in how this catering company operates. The wide range of ingredients, from basic foods such as rice and poultry to spices and oil, shows that MSMEs Rains Catering provides a varied menu.

Table 2. Additional Raw Material Costs for Rains Catering MSMEs

Information	Quantity	Price
Plastic bento box	100 pcs	IDR 100,000
Plastic spoon	100 pcs	IDR 15,000
Plastic size 10cm×20cm	2 pack	IDR 7,000
Rice paper	100 pcs	IDR 6,000
Sambal Mica	100 pcs	IDR 14,000
Total		IDR 142,000

Source: Processed primary data

Costs associated with acquiring additional raw materials for the food production or packaging process are described in Table 2. Disposable utensils, food packaging, and other equipment are examples of additional raw materials that are commonly used to enhance the presentation of food. The purchase of plastic bento boxes, which are probably the main containers used to serve food, incurs the highest cost, as shown in the table. In addition, there are costs for boarding paper, containers for chili sauce, plastic spoons, and 10×20 cm plastic bags that may be used to wrap certain foods. All of these additional raw materials have cost a total of IDR 142,000

Table 3. Production Cost of MSMEs Rains Catering

Information	Price
Rawmaterialcost	IDR1,680,000
Directlaborcost	IDR350,000
Factoryoverheadcost	IDR340,000
Costofgoodsmanufactured	IDR2,370,400
Numberoforders	100unit
Priceperunit	IDR23,704

Source: Processed primary data

The production costs for a particular product are summarized in Table 3. The total cost of raw materials used in the production process is IDR 1,680,000, as shown in the table. The salaries of employees who directly participate in the production process are included in the direct labor costs of IDR 350,000, which is in addition to raw materials. Other indirect costs, including electricity, equipment depreciation, and general manufacturing costs, are included in factory overhead costs of IDR 340,400. The total cost of production, including the three cost components, is IDR 2,370,400. This shows that the business must spend this amount of money to produce 100 units of the product.

Table 4. Equipment Costs for Rains Catering MSMEs

Information	Quantity	Price
Knife	2	IDR24,000
Steamedrice	1	IDR150,000

Wok30cm	1	IDR82,000
Wok30cm	1	IDR66,000
Spatula	2	IDR30,000
Total		IDR352,000

Source: Processed primary data

The costs paid for the purchase of equipment used in the food production or processing process are detailed in Table 4. The acquisition of a rice steamer, which may be used to steam a certain amount of rice, is clearly the highest expenditure, as can be seen from the table. Additionally, there is a charge for culinary equipment, including spatulas, knives, and pans of various sizes. All this equipment has cost IDR 352,000 in total.

Sensitivity Analysis
1. Income
  With a total production of UMKM Rains Catering of 100 per day, with a price of 1 production of IDR 23,704. Then the income per day is IDR 2,370,400, the income per month is IDR 47,408,000, assuming 1 month receives 20 orders, and the income per year is IDR 568,896,000.

2. Present Value

Table 5. Present Value MSMEs Rains Catering

Year	EAT	Depreciation	Proceed	DF (6%)	PVProceed
1	IDR37,080,000	IDR200,000	IDR37,280,000	0,943396226	IDR35,169,811
2	IDR37,080,000	IDR200,000	IDR37,280,000	0,88999644	IDR33,179,067
3	IDR37,080,000	IDR200,000	IDR37,280,000	0,839619283	IDR31,301,007
4	IDR37,080,000	IDR200,000	IDR37,280,000	0,792093663	IDR29,529,252
5	IDR37,080,000	IDR200,000	IDR37,280,000	0,747258173	IDR27,857,785
		IDR1,000,000			**IDR157,036,922**

Source: Processed primary data

Above is a table of cash flow projections generated from a five-year investment. In this case, the assumed fixed costs will be incurred each year, which is assumed to be IDR 200,000 as depreciation costs of assets related to this investment. It can be seen from the table that every year there is a consistent cash inflow as well as results representing income or profits derived from the investment of IDR 37,280,000. The "Cumulative" column is the total cash flow growth up to that year, while the "PV Proceed" column shows the cash flow in present value to which a discount factor of 6% per year has been applied. Therefore, the present value of the cash inflow for five years is IDR 157,036,922. This means that if we invest a certain amount of money at the beginning of the period, then the present value of all the profits we will get in five years is IDR 157,036,922

3. Net Present Value
$NPV = TotalPVProceed - TotalInvestment$
$NPV = IDR\ 157,036,922 - IDR\ 1,000,000$
$NPV = IDR\ 156,036,922$

In this case, UMKM Rains Catering. Net Present Value is a tool that can be used to evaluate the feasibility of an investment project. The NPV value of IDR 156,036,922 indicates that this investment will provide a net profit equivalent to the amount mentioned above in present value. This means that by considering the amount of money invested at the beginning of the project, the amount of the present value of the future benefits that we will receive will be greater than the amount of the initial investment. In other words, this investment is profitable and worth investing in.

Optimal Funding
1. Internal Rate of Return

Table 6. Present Value (Discount Factor 7%)

Year	EAT	Proceed	DF (7%)	PVProceed
1	IDR37.080.000	IDR37.280.000	0,934579439	IDR34,841,121
2	IDR37.080.000	IDR37.280.000	0,873438728	IDR32,561,796
3	IDR37.080.000	IDR37.280.000	0,816297877	IDR30,431,585
4	IDR37.080.000	IDR37.280.000	0,762895212	IDR28,440,734
5	IDR37.080.000	IDR37.280.000	0,712986179	IDR26,580,125
		Total		**IDR152,855,360**

Source: Processed primary data

Table 7. Present Value (Discount Factor 8%)

Year	EAT	Proceed	DF (7%)	PVProceed
1	IDR37.080.000	IDR37.280.000	0,925925926	IDR34,518,519
2	IDR37.080.000	IDR37.280.000	0,85733882	IDR31,961,591
3	IDR37.080.000	IDR37.280.000	0,793832241	IDR29,594,066
4	IDR37.080.000	IDR37.280.000	0,735029853	IDR27,401,913
5	IDR37.080.000	IDR37.280.000	0,680583197	IDR25,372,142
		Total		**IDR148,848,230**

Source: Processed primary data

The sensitivity analysis of the present value of consistent cash flows of IDR 37,280,000 for five years is shown in both tables. This analysis was done by changing the discount rate of the calculation. The findings show that the present value of the cash flows decreases as the discount rate increases. The reason for this is that a higher discount rate implies a higher predicted rate of return, which lowers the value of money in the future relative to money today. The fact that the present value differs between the two discount rates (7% and 8%) indicates that the value of the investment is very sensitive to changes in the discount rate. This implies that small adjustments in the discount rate may result in large variations in value.

$IRR \ (discount factor \ 7\%) = IDR \ 151,855,360$
$IRR \ (discount factor \ 8\%) = IDR \ 147,848,230$
$Difference = IDR \ 151,855,360 - IDR \ 147,848,230$
$Difference = IDR \ 4,007,130$
$Percentage difference = 38\%$
$IRR = 45\%$

Based on the calculation, the Internal Rate of Return (IRR) is estimated at 45%, which is relatively high for an MSME-scale investment. This high IRR should be interpreted with caution, as it may be influenced by several factors. First, the relatively small initial investment scale can mathematically inflate the IRR value. Second, the analysis assumes stable and consistent cash flows over the five-year period, which may not fully reflect real operational conditions faced by catering MSMEs. In practice, cash flows are subject to various risks, including demand fluctuations, changes in consumer purchasing behavior, potential delays or defaults in customer payments, and increases in non-raw material costs such as labor, utilities, and distribution expenses. Moreover, the current IRR calculation does not explicitly incorporate these operational and market risks, which may lead to an overestimation of investment performance. Therefore, although an IRR of 45% indicates strong profitability potential, it also highlights the sensitivity of the investment to underlying assumptions. This finding emphasizes the importance of complementing IRR analysis with broader risk assessments and scenario-based evaluations to obtain a more realistic appraisal of investment feasibility in MSMEs.

2. Balance Sheet

Table 8. Balance Sheet of Rains Catering MSMEs

Asset/Aktiva		Liability/Pasiva	
CurrentAssets			
Cash	IDR192,576,000	Short-termdebt	
Inventoryrawmaterials	IDR376,320,000	IDR376,320,000	IDR376,320,000
Receivables			
FixedAssets			
Equipment	IDR352,000	Long-termdebt	IDR37,432,000
		Capital	IDR531,816,000
	IDR569,248,000	IDR569,248,000	IDR569,248,000
Total	IDR569,248,000	IDR569,248,000	IDR569,248,000

Source: Processed primary data

The financial status of the UMKM at the end of 2023 is shown in the UMKM Catering balance sheet report as of December 31, 2023. The company's total assets, which include fixed assets such as equipment and current assets such as cash and raw material inventory, are IDR 569,248,000. However, all liabilities and debts, including long-term loans, reached IDR 37,432,000. Owner's equity or investment in this company makes up the remaining amount of IDR 531,816,000. In short, this study shows that UMKM Rains Catering is in good financial condition because it has more assets than liabilities.

3. Profit and Loss Statement

Table 9. Profit and Loss Statement MSMEs Rains Catering

Sales	IDR568,896,000
Costofsales	IDR28,444,800
Grossprofit	IDR540,451,200
Operatingexpenses	IDR8,284,800
Netprofit	IDR532,166,400

Source: Processed primary data

The MSME's income statement for the period January 1 – December 31, 2023, shows very strong financial performance. The business managed to record total sales of IDR 568,896,000. The business generated IDR 540,451,200 in gross profit after deducting the cost of goods sold of IDR 28,444,800. The business's ability to control production costs is demonstrated by gross profit. The business generated a net profit of IDR 532,166,400 after deducting operating costs of IDR 8,284,800. This positive net profit shows that the business made money throughout the time period and was able to pay all its expenses.

4. Weighted Average Cost of Capital

In calculating the Weighted Average Cost of Capital, there are several steps, including:
Calculate the after-tax cost of debt (kD)

kd: 6% or 0,06
T: 0,5% or 0,005
Calculate,
$kD = (1 - T)(kd)$
$kD = (1 - 0,005)(0,06)$
$kD = 0,0597$
$kD = 6\%$
With,
kD: *Cost of debt after tax*
T: *Tax rate*

kd: $Cost of debt$
So, the cost of debt after tax is 0,0597 or 6%.
Calculate the cost of capital.
$kE = Rf$
$With,$
kE: $Capital cost$
Rf: $Risk free rate of return on investment$
Rm: $Average investment interest rate$
$β$: $Measure of stock risk level$
So, the capital cost is 0,035 or 3,50%.
Calculate capital structure
$Total debt$: IDR 37,432,000
$Total capital$: IDR 531,816,000
$Calculate,$
So, the debt composition is 7%.
$Calculate,$
$Capital composition$ (wE) (%) = 93%
So, the capital composition is 93%

Calculate the weighted average cost of Capital.
wD: 0,06576
kD: 0,0597
wE: 0,93424
kE: 0,035
wD: 0,06576
$Calculate,$
$WACC = (wD × kD) + (wE × kE)$
$WACC = (0,06576 × 0,0597) + (0,93424 × 0,035)$
$WACC = 0,003925872 + 0,0326984$
$WACC = 0,036624272$
$WACC = 3,6\%$

The calculation of the Weighted Average Cost of Capital (WACC) in this study yields a value of 3.6%, derived from a capital structure dominated by equity financing. While the application of WACC is commonly associated with large corporations, its use in this MSME context is intended as an analytical approximation rather than a direct transfer of corporate finance theory. The relatively low cost of equity assumption (3.5%) reflects the internal nature of equity financing in Rains Catering, where capital is primarily sourced from the owner and close family members, and where expected returns are often influenced by opportunity costs and informal return expectations rather than market-based equity risk premiums. However, it is important to note that this assumption may underestimate the true business risk faced by MSMEs, which generally experience higher operational uncertainty, limited market power, and greater vulnerability to cost and demand fluctuations compared to large firms. Therefore, the resulting WACC should be interpreted cautiously as a case-specific benchmark rather than a normative standard for MSMEs in general. Furthermore, the break-even point (BEP) analysis, while presented numerically, provides practical managerial implications for mitigating raw material price risk. The BEP identifies the minimum revenue level required to cover total costs and can inform pricing flexibility by indicating the extent to which selling prices can be adjusted without incurring losses. In addition, knowledge of the BEP supports strategic decisions such as negotiating long-term contracts with suppliers to stabilize raw material costs, implementing menu diversification to reduce dependence on price-volatile inputs, and adjusting product composition toward higher-margin items. These strategies enable the MSME to remain above the break-even level even under

adverse cost conditions. Thus, although the financial indicators are derived from a single case, the integration of WACC and BEP analysis offers practical insights into how MSMEs can align financial planning with operational strategies to enhance resilience against raw material price volatility.

The results of this study confirm that raw material price fluctuations have a substantial impact on the profitability of catering MSMEs. This finding is consistent with the structural characteristics of catering businesses, where raw material costs account for the largest proportion of total operating expenses. Consequently, even minor increases in input prices can significantly erode profit margins. This vulnerability is further amplified by the limited bargaining power of MSMEs and their dependence on short-term supplier relationships, which restrict their ability to stabilize input costs. These results are in line with previous studies highlighting the exposure of food and beverage MSMEs to price volatility due to scale limitations and restricted access to long-term supply contracts (Kurniawan & Susanto, 2022). The sensitivity analysis applied in this study provides deeper insight into the degree of profitability risk faced by MSMEs under fluctuating cost conditions. The results demonstrate that profitability is highly elastic with respect to raw material price changes, indicating that catering MSMEs operate within a narrow margin of safety (Amani, T. et al, 2025). This implies that cost shocks, if not accompanied by timely managerial responses, may quickly push businesses below the profitability threshold. Similar findings have been reported by Sari et al. (2023), who emphasize that sensitivity analysis enables MSMEs to anticipate critical cost thresholds and develop early-warning mechanisms for financial stress. Therefore, beyond its descriptive role, sensitivity analysis functions as a strategic planning tool that supports proactive cost control and pricing decisions.

Gross Profit and Net Profit Analysis in Cost Management

The analysis of gross profit and net profit further highlights the importance of effective cost management in sustaining MSME performance. Rising raw material prices directly reduce gross profit, and if selling prices remain unchanged, this reduction inevitably translates into declining net profit. This result reinforces cost management theory, which emphasizes the central role of cost control in maintaining profitability, particularly in small businesses with limited pricing power (Horngren et al., 2021). Moreover, the findings reveal that the structure of fixed and variable costs significantly influences financial resilience. MSMEs with higher fixed cost proportions face greater financial risk during revenue downturns, as they lack operational flexibility. This observation aligns with Rahmawati and Nugroho (2022), who argue that cost flexibility enhances MSME adaptability during periods of economic uncertainty. Accordingly, MSMEs are encouraged to adopt more flexible cost structures, for example, by outsourcing non-core activities or adjusting labor arrangements during low-demand periods.

Break-Even Point as the Basis for Pricing and Operational Strategy

The break-even point (BEP) analysis provides practical insights into the minimum revenue required to sustain operations without incurring losses. In the context of fluctuating raw material prices, the BEP serves not only as a financial benchmark but also as a strategic decision-making reference. By understanding their BEP, MSMEs can evaluate the feasibility of price adjustments, determine acceptable cost increases, and assess the viability of different sales volumes. Heizer et al. (2020) emphasize that BEP analysis is particularly relevant for MSMEs in the food and beverage sector, where margins are thin, and cost increases cannot always be fully passed on to consumers. In addition, BEP information can support operational strategies such as menu diversification, reformulation of recipes using alternative inputs, and negotiation of long-term supplier contracts to stabilize costs. These strategies allow MSMEs to maintain revenues above the break-even level despite volatile input prices (Putri & Wibowo, 2023).

Analysis of Optimal Funding Sources Between Debt and Equity

The WACC analysis indicates that capital structure decisions play a critical role in determining financial sustainability. Although moderate use of debt may lower the overall cost of capital and enhance returns, excessive leverage can expose MSMEs to heightened financial risk, particularly when revenues are unstable. This finding is consistent with the trade-off theory of capital structure, which suggests that firms must balance the benefits of debt with the associated risk of financial distress (Brealey et al., 2023). In the MSME context, this balance is especially delicate due to limited access to formal credit markets and higher income volatility. Therefore, the results of this study support prior research emphasizing that a conservative and balanced capital structure is generally more suitable for MSMEs operating in uncertain cost environments (Sutrisno & Hartono, 2022).

Financial Feasibility Evaluation Based on NPV and IRR

The evaluation of financial feasibility using NPV and IRR under optimistic and pessimistic scenarios demonstrates that investment viability is highly sensitive to assumptions regarding cash flows and the cost of capital. Positive NPV values and IRR exceeding WACC indicate that the business is financially feasible under favorable conditions. However, scenario analysis reveals that adverse changes in costs or revenues can significantly reduce investment attractiveness. This finding underscores the importance of incorporating uncertainty into capital budgeting decisions, particularly for MSMEs with limited financial buffers. Consistent with capital budgeting theory, NPV and IRR remain valuable indicators; however, their interpretation must be complemented by risk analysis to avoid overestimating project feasibility (Ross et al., 2022). Lestari et al. (2023) further confirm that scenario-based evaluation enhances MSME decision-making by encouraging contingency planning and risk mitigation strategies. Overall, this discussion highlights that financial tools such as sensitivity analysis, BEP, WACC, NPV, and IRR are not merely accounting exercises but strategic instruments that, when applied critically, can support more resilient financial and operational decision-making in catering to MSMEs facing raw material price volatility.

CONCLUSION

This study shows that sensitivity analysis and capital structure analysis can help understand the impact of raw material price fluctuations on profitability in a catering MSME. Based on the Rains Catering case study, the results illustrate how changes in costs affect break-even conditions, NPV, IRR, and the cost of capital. The analysis also indicates that choosing a funding structure with a lower cost of capital can support financial stability and business continuity. This research is limited to one MSME, and the findings are specific to the characteristics of the case studied. Therefore, the results should not be generalized to all catering MSMEs. The main contribution of this study is to provide a practical analytical approach that can be applied by MSMEs to evaluate pricing and financing decisions. Future studies involving more MSMEs are recommended to improve generalizability.

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