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Risk Management Approach in Facing Market Uncertainty for MSMEs in the Culinary Industry

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Abstract: This study explores how culinary MSMEs in Indonesia implement risk management strategies to cope with market uncertainty influenced by fluctuating consumer demand, digital competition, rising production costs, and unstable supply chains. Employing a qualitative descriptive approach, the research gathered data through interviews, observations, and document reviews involving purposively selected MSME owners. The results show that most culinary MSMEs adopt informal, experience-driven practices to manage risks, focusing on product flexibility, diversified suppliers, cost-control efforts, and proactive digital engagement. The use of social media, online delivery services, and electronic payment systems supports wider customer reach, operational continuity, and more predictable transactions, even though digital literacy limitations and resource constraints continue to hinder optimal adoption. Comparative findings from Surabaya, Bandung/Soreang, Denpasar, Malang, and Sleman/Yogyakarta indicate that MSMEs across regions face similar risk patterns and apply comparable adaptive strategies, suggesting that these issues are structural rather than geographically unique. Overall, the study highlights that resilience among culinary MSMEs is strengthened by agility, practical decision-making, and effective utilization of digital tools. It also points to the importance of expanded institutional support, capability-building initiatives, and accessible risk management frameworks tailored to the needs of micro-enterprise actors.

Keywords: Culinary MSMEs, Risk Management, Market Uncertainty, Digital Adoption, Resilience, Qualitative Study

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) constitute a fundamental pillar of Indonesia's economic structure, contributing over 60% to national GDP and absorbing a dominant share of the national labor force (BPS, 2023). Within this sector, culinary MSMEs continue to expand rapidly, driven by growing urbanization, lifestyle changes toward convenience consumption, and the widespread adoption of digital platforms such as online food delivery services and social media commerce (I. Wardana et al., 2022). These digital innovations have democratized access to consumers and enabled culinary businesses to scale despite limited physical space, thus strengthening their economic contribution and market visibility. However, such developments also introduce new vulnerabilities, as culinary MSMEs face increased competition, shorter product life cycles driven by viral trends, and greater pressure to innovate continuously in an increasingly crowded marketplace.

Beyond domestic dynamics, global macroeconomic shifts have intensified uncertainty for culinary MSMEs. The lingering effects of the COVID-19 pandemic, geopolitical instability such as the Russia Ukraine conflict, and disruptions in global supply chains have contributed to price volatility and inflationary pressures within food-related industries worldwide (OECD, 2023). Simultaneously, global sustainability movements have reshaped consumer expectations, compelling culinary MSMEs to adopt environmentally friendly practices, responsible sourcing, and waste-reduction strategies to remain relevant in evolving value chains (FAO, 2023). These interconnected global forces demand agility and risk preparedness, highlighting the importance of developing adaptive strategies that address both structural and external market shocks.

In the Indonesian context, the pandemic highlighted the structural fragility of culinary MSMEs, exposing challenges such as cash flow limitations, supply chain vulnerabilities, and accelerated shifts in consumer purchasing behavior toward digital platforms and at-home consumption models (Saad et al., 2022). Even after economic reopening, culinary MSMEs continue to experience pressure from inflation, fluctuating ingredient prices, and increasingly demanding digital consumers who expect marketing transparency, personalized services, and rapid delivery (Mohezar et al., 2023). As such, risk management becomes central to ensuring business continuity and strategic competitiveness, evolving from a defensive mechanism into a proactive approach to sustain performance in dynamic market environments. Effective responses to these shifts require MSMEs to enhance adaptive capabilities, strengthen digital engagement, and implement resilient financial and operational strategies.

However, despite increasing awareness of the importance of risk management, many MSMEs still depend heavily on informal decision-making practices, intuition-based responses, and reactive strategies shaped by resource limitations and managerial capacity constraints (I. Ali et al., 2021; S. Suminah et al., 2022). Existing research largely emphasizes financial resilience, digital transformation, or innovation as primary drivers of MSME survivability, yet limited studies specifically explore how culinary micro-enterprises employ informal, behavior-based, and experience-driven risk mitigation to navigate market uncertainty. This represents a critical research gap, particularly since traditional corporate risk frameworks may not be suitable for micro-scale enterprises operating under constrained resources and rapidly shifting market environments.

Therefore, the novelty of this study lies in examining grassroots adaptive risk responses employed by culinary MSMEs including improvisational digital strategies, supplier collaboration networks, and experiential financial adjustments illustrating how micro-entrepreneurs navigate uncertainty using contextually grounded practices rather than formalized corporate systems. This empirical perspective contributes a micro-behavioral understanding of resilience in the culinary sector, offering insights relevant for policy formulation, capability-building programs, and the development of scalable support frameworks for MSMEs. Accordingly, this study seeks to answer the question: How do culinary

MSMEs implement risk management to navigate market uncertainty and sustain business performance in an increasingly volatile and digitally driven environment?

Micro, Small, and Medium Enterprises (MSMEs) in Indonesia are formally regulated under Law No. 20/2008, which categorizes businesses based on asset ownership and annual revenue thresholds. Beyond this legal framework, MSMEs are widely characterized by their operational flexibility, localized resource utilization, informal management structures, and the strong involvement of owners in daily operations (S. Suminah et al., 2022). Within this sector, culinary MSMEs emerge as a highly dynamic and creative economic engine, capable of adapting swiftly to shifts in consumer tastes, food trends, and evolving lifestyle demands (Isa, 2023). The rapid advancement of digital ecosystems particularly through online food delivery platforms, e-commerce systems, and social media has significantly lowered market entry barriers, expanded customer reach, and accelerated business growth for culinary entrepreneurs (J. Gao et al., 2023). However, these opportunities coexist with substantial risks, such as fluctuating raw material prices, high supplier dependency, and challenges in maintaining product consistency alongside managerial and financial limitations (Roscoe, Skipworth, et al., 2020; Saad et al., 2022).

Given these dynamics, risk management plays a pivotal role in ensuring sustainable business performance for culinary MSMEs. Conceptually, risk management encompasses a structured set of activities including risk identification, assessment, mitigation, and continuous evaluation to safeguard business continuity (I. Ali et al., 2021). Effective implementation enables enterprises to anticipate uncertainty, build adaptive decision-making capabilities, and reduce operational exposure to disruptions. Market instability manifested through unpredictable consumer preferences, volatile supply chains, and dynamic pricing environments Fares et al. (2022) further reinforces the urgency for culinary MSMEs to adopt systematic risk mitigation practices. In this regard, digital adoption, learning agility, and collaborative strategies have been recognized as critical determinants of MSME resilience, allowing businesses to buffer external shocks and leverage emerging opportunities (I. Wardana et al., 2022).

Despite its strategic importance, structured risk management remains under-adopted among culinary MSMEs in Indonesia. Empirical evidence shows that many enterprises continue to rely on informal, intuition-based decision-making processes, largely influenced by limited managerial capacity, constrained resources, and insufficient exposure to formal management tools (S. Suminah et al., 2022). While prior studies have explored MSME survival strategies more broadly, specific examinations of risk management within the culinary subsector especially in the context of increasing digitalization, market turbulence, and supply chain vulnerability remain scarce. This research therefore seeks to fill this knowledge gap by providing a deeper understanding of how culinary MSMEs implement risk management strategies to navigate uncertainty and maintain sustainable performance. Through this focus, the study contributes to the growing discourse on MSME resilience, offering insights that are contextually relevant and practically applicable to small-scale food businesses.

METHOD

This study adopted a qualitative descriptive research approach to obtain a comprehensive understanding of real-world risk management practices among culinary MSMEs. The qualitative design enabled an in-depth exploration of behavioral patterns, decision-making processes, and contextual strategies utilized by business owners in navigating market uncertainties. Participants consisted of owners or managers of culinary enterprises, selected through purposive sampling to ensure representation across various business categories such as cafés, small restaurants, food stalls, and catering services. Data collection was conducted using in-depth interviews, field observations, and document reviews, including financial records, digital marketing materials, and procurement documentation. To ensure validity and trustworthiness, data triangulation was applied by cross-referencing information from multiple sources. The analysis process followed an interactive model comprising data reduction, data presentation, and conclusion drawing, allowing the researcher to systematically interpret

findings and derive meaningful insights related to risk management implementation in the culinary MSME sector.

The qualitative descriptive approach used in this study is designed to capture the natural behavior, reasoning patterns, and decision-making tendencies of culinary MSME owners in their real operational environments. This approach allows the researcher to explore how business actors interpret risks, respond to market uncertainty, and adapt their strategies based on daily experiences. The purposive sampling technique ensures that selected participants possess direct knowledge and practical involvement in managing culinary businesses, enabling the study to gather detailed and contextually rich information. To strengthen the methodological relevance, this study also integrates comparative insights derived from MSMEs in several major Indonesian cities namely Surabaya, Bandung/Soreang, Denpasar, Malang, and Sleman/Yogyakarta. These cities provide diverse yet representative contexts of how culinary MSMEs operate under fluctuating demand, competitive pressures, and dynamic market conditions. Including these comparative elements within the methodological framework helps ensure that the analytical process captures not only localized behavioral patterns but also broader variations in risk responses across different regional environments.

Using in-depth interviews, observations, and document reviews provides a comprehensive understanding of how MSMEs operate, how they manage internal and external risks, and how their strategies evolve in response to market dynamics. The use of multiple data sources strengthens the depth of analysis, as each source offers different perspectives on the same phenomenon. The analysis process, which includes data reduction, data display, and conclusion drawing, allows the researcher to interpret patterns systematically and identify meaningful relationships among emerging themes. This method ensures that the findings reflect both contextual realities and the practical decision-making processes commonly used by culinary MSMEs in navigating uncertainty.

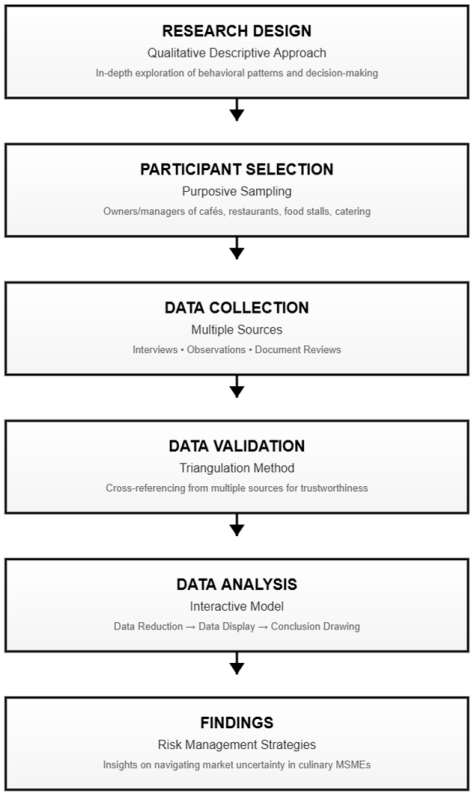


Figure 1. Research Methodology Flow Diagram

The diagram illustrates the systematic research process employed in this study, grounded in a qualitative descriptive approach. The methodology comprises six sequential stages

designed to ensure analytical rigor and depth of understanding. The first stage, research design, establishes the qualitative descriptive framework to achieve a comprehensive understanding of risk management practices among culinary MSMEs. The second stage, participant selection, applies purposive sampling to recruit business owners and managers representing diverse categories of culinary enterprises, including cafés, restaurants, food stalls, and catering services. The third stage, data collection, involves conducting in-depth interviews, field observations, and document analysis of financial records, marketing materials, and procurement documentation. The fourth stage, data validation, employs triangulation techniques to verify data credibility by cross-checking information from multiple sources. The fifth stage, data analysis, utilizes an interactive analytical model consisting of data reduction, data display, and conclusion drawing. The final stage, findings, synthesizes insights into the risk management strategies adopted by culinary MSMEs in responding to market uncertainty. Through this structured process, the study ensures methodological rigor, reliability, and the validity of research outcomes.

RESULTS AND DISCUSSION

The results reveal that culinary MSMEs face persistent market uncertainty driven by fluctuating consumer behavior, rising supply costs, and intensified digital competition. Participants consistently reported that customer preferences shift rapidly based on social media trends, seasonal demand patterns, and convenience-oriented consumption behavior increasingly influenced by online delivery applications. These changes are often abrupt, meaning a product that is popular one week can quickly lose traction if social media discourse or viral content shifts to new culinary themes. In addition, consumer expectations related to service speed, menu innovation, and product presentation have risen significantly due to continuous exposure to curated online food content. This environment creates heightened pressure for MSMEs to constantly innovate, update menus, and refine their marketing strategies to avoid losing relevance. Such dynamics align with prior research asserting that digital platforms accelerate trend cycles and increase the volatility of consumer tastes, compelling food MSMEs to respond quickly and strategically to market signals in order to maintain competitiveness (J. Gao et al., 2023; Kim et al., 2020). Consequently, culinary MSMEs not only need to remain agile in product development but also build digital literacy and monitoring capabilities to anticipate shifts in online consumer sentiment. This demonstrates how the intersection between technology adoption and consumer behavior has become a central determinant of business sustainability within the contemporary culinary MSME landscape.

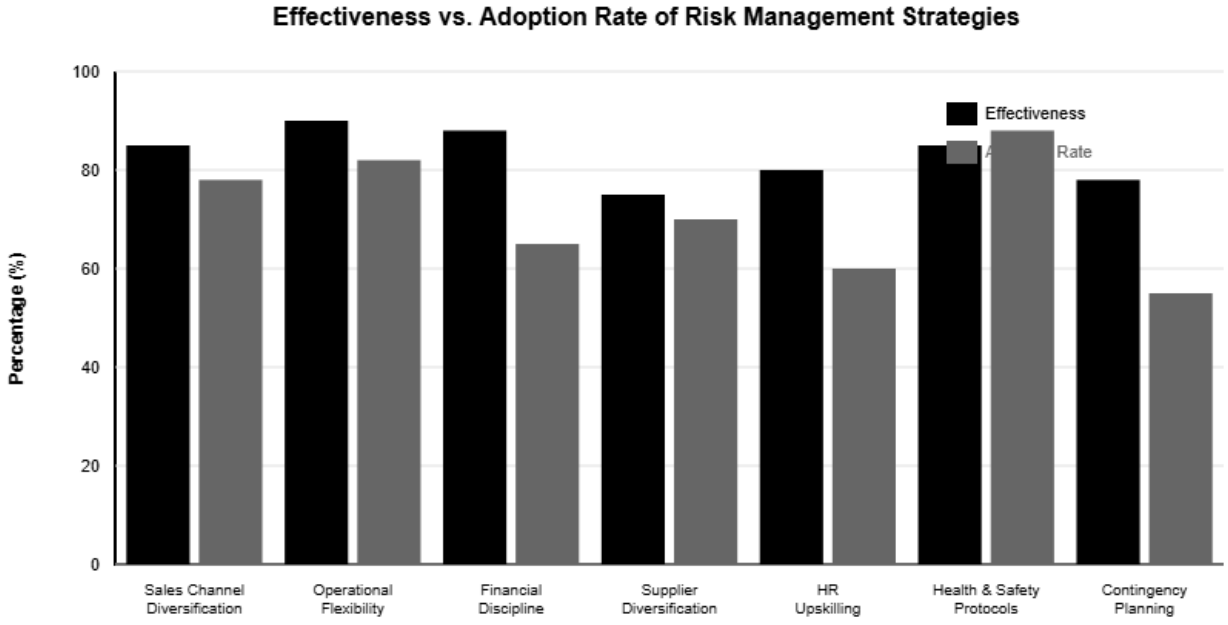


Figure 2. Effectiveness vs. Adoption Rate of Risk Management Strategies

Figure 2 illustrates the relationship between the effectiveness and adoption rate of various risk management strategies implemented by culinary MSMEs. The visualization demonstrates that informal and experience-based methods dominate the risk response landscape, where business owners rely heavily on intuition, day-to-day learning, and rapid decision-making rather than formal systems. Such behavior aligns with findings that micro-enterprise environments often prioritize agility over structured managerial protocols due to operational immediacy and resource constraints (W. B. Ali et al., 2024; Isa, 2023). These results reinforce the argument that in the MSME context, experiential knowledge plays a pivotal role in shaping managerial behavior, especially in high-pressure and fast-moving markets such as the culinary sector.

The diagram further reveals that supplier diversification is considered highly effective, yet adoption varies based on business scale, social networks, and purchasing power. Enterprises with established relational capital reported reduced supply risk through maintaining multiple supplier channels and collaborative procurement, aligning with research suggesting that inter-firm collaboration improves resource access and mitigates supply vulnerabilities among MSMEs (Fares et al., 2022; S. Suminah et al., 2022). Meanwhile, smaller or newer businesses struggled to build supplier networks due to limited trust, negotiation leverage, and market information, consistent with prior findings on the uneven formation of MSME supply ecosystems (Roscoe, Skipworth, et al., 2020).

Digital adoption also emerged as a key strategy, demonstrating high effectiveness in expanding customer access, streamlining operations, and ensuring continuity during periods of market disruption. MSMEs that actively utilized digital applications for sales, promotion, and financial recording exhibited higher stability in revenue generation and customer engagement, consistent with recent studies that highlight digital transformation as a primary determinant of MSME competitiveness (Q. Gao et al., 2022; I. Wardana et al., 2022). However, adoption gaps persisted among operators with limited digital literacy, technology access, or time capacity, echoing global evidence that digital divides remain a major barrier for small businesses in developing economies (OECD, 2023).

In contrast, structured approaches such as financial planning, formal budgeting, and contingency planning displayed lower adoption rates despite their long-term strategic value. Respondents cited limited managerial expertise and training opportunities as key barriers, aligning with research identifying skills gaps and insufficient institutional support as major challenges for MSME formalization (I. Ali et al., 2021; Mohezar et al., 2023). These findings reinforce the need for targeted capability-building interventions, mentorship programs, and accessible business development resources to help MSMEs transition toward more systematic planning and risk-control mechanisms (Fund, 2023)

Price volatility was consistently identified as one of the most pressing challenges affecting culinary MSMEs. Sharp increases in key commodities such as cooking oil, chili, rice, and meat placed pressure on production costs and profit margins, particularly during economic shocks or agricultural disruptions. This outcome aligns with prior research demonstrating that inflation and supply chain shocks disproportionately burden micro-businesses with limited financial buffers (Roscoe, Skipworth, et al., 2020; S. Suminah et al., 2022). Similar patterns have been observed globally, where food-based MSMEs face intensified commodity risks as a consequence of geopolitical conflict, climate instability, and global supply chain fragmentation (FAO, 2023; UNCTAD, 2023).

The findings also show that culinary MSMEs overwhelmingly employ informal adaptation strategies such as menu revision, portion adjustment, cost control, and supplier substitution. These tactics reflect improvisational learning and practical response mechanisms commonly found in micro-enterprise operations, consistent with literature emphasizing that MSMEs often rely on flexible adaptation rather than formalized risk management models (Isa, 2023; Y. Wardana, 2022). Informal decision-making is therefore not a weakness but a survival-driven response shaped by cultural, financial, and structural realities in the MSME environment (Saad et al., 2022).

Lastly, the analysis underscores the importance of digital literacy, entrepreneurial experience, and capability development in shaping resilience. MSMEs that invested in learning, built strong supplier networks, and continuously explored innovative selling methods were better positioned to withstand market shocks and evolving consumer expectations. These results support prior findings that adaptive capability, innovation mindset, and social capital significantly strengthen MSME endurance under economic uncertainty (W. B. Ali et al., 2024; Q. Gao et al., 2022; Mohezar et al., 2023). Ultimately, Figure 2 highlights that while informal strategies are effective in the short term, long-term competitiveness will increasingly depend on structured training, technological capacity, and institutional support to balance agility with systematic preparedness.

Table 1. Risk Management Strategies Used by Culinary MSMEs

Strategy	Description	Observed Purpose
Diversification of Sales Channels	Using food delivery platforms, social media sales, and e-commerce	Expand customer access & stabilize revenue
Operational Flexibility	Adjusting menus, portion sizes, pricing, and packaging; offering pre-order or delivery systems	Respond to fluctuating consumer trends & demand
Financial Discipline	Cost control, digital bookkeeping, inventory efficiency	Maintain liquidity & prevent financial losses
Supplier Diversification & Partnerships	Building relations with multiple suppliers and MSME networks	Reduce supply dependency & increase stability
Human Resource Upskilling	Training employees in service, cooking efficiency, or digital tools	Improve performance and service consistency
Health & Safety Protocols	Enhanced hygiene, transparent communication, safe packaging	Increase consumer trust & perceived product quality
Scenario & Contingency Planning	Securing stock reserves, backup suppliers, emergency plans	Ensure operational continuity during shocks

The findings presented in Table 1 demonstrate that diversification of sales channels constitutes one of the primary strategies adopted by culinary MSMEs to strengthen business continuity. By utilizing online food delivery applications, leveraging social media platforms, and incorporating e-commerce solutions, MSMEs expand market reach beyond physical footfall dependency. This diversification strategy allows businesses to stabilize revenue streams across varying market conditions, particularly during periods of mobility restrictions or seasonal demand shifts. Furthermore, the ability to manage multiple sales channels increases customer accessibility and enhances brand visibility, which has become increasingly essential in today's digital-driven food consumption landscape. These practices align with studies emphasizing the critical role of multi-platform commercialization in improving MSME resilience and reducing vulnerability to local market shocks.

Operational flexibility also emerged as a crucial risk management practice, particularly evident in how MSMEs adjust menu offerings, modify portion sizes, revise pricing structures, and reconfigure packaging methods based on real-time market feedback. Many enterprises additionally utilize pre-order systems and implement mixed fulfillment models such as self-delivery or collaboration with third-party couriers. This agile approach enables MSMEs to respond quickly to shifting consumer preferences, fluctuating raw material availability, and changing competitive pressures. Such flexibility reflects adaptive capabilities commonly associated with resilient small enterprise environments, where operational improvisation becomes a key mechanism for maintaining product relevance and customer satisfaction.

Financial discipline was consistently highlighted as a foundation for business stability among MSMEs. The adoption of cost-control techniques, basic digital bookkeeping tools, and effective inventory management practices allowed operators to allocate resources more efficiently and preserve liquidity. By maintaining structured cash-flow management, MSMEs are better prepared to withstand

unexpected expenses, cost spikes in raw materials, or temporary declines in sales performance. These practices underscore the importance of financial prudence within micro-enterprise settings, where limited capital access and banking constraints heighten vulnerability to cash shortages. Consequently, improving financial literacy remains critical for strengthening long-term business sustainability.

Supplier diversification and partnership strategies are also central to risk mitigation. Culinary MSMEs frequently build relationships with multiple vendors to avoid overreliance on a single supply source and reduce exposure to market disruptions or price fluctuations. Collaboration within MSME networks such as joint purchasing arrangements or peer-based supplier referrals further reinforces supply chain stability and promotes shared resilience. These relational strategies not only enhance raw material accessibility but also foster a supportive business ecosystem, enabling resource sharing and knowledge exchange. Strengthening supplier partnerships therefore contributes significantly to operational continuity and procurement security.

Human resource upskilling represents another important dimension of MSME resilience. Training employees in food preparation efficiency, customer service quality, and digital tools enhances workforce productivity and service consistency. In a competitive culinary environment where consumer expectations are increasingly shaped by digital platforms and experiential dining preferences, investing in staff competency becomes imperative. Skill development also improves task delegation, reduces operational errors, and prepares MSMEs to adapt to technological developments and evolving market standards. As a result, human capital investment directly supports both performance improvement and innovation capacity.

Health and safety protocols have become foundational risk control mechanisms, particularly in the wake of heightened consumer awareness following the COVID-19 pandemic. Enhanced hygiene standards, transparent communication regarding sanitation practices, and the use of secure or eco-friendly packaging significantly influence customer trust and brand credibility. MSMEs that maintain high levels of hygiene quality are more likely to retain loyal customers, differentiate themselves in competitive markets, and comply with evolving food safety requirements. This strategy therefore contributes simultaneously to risk prevention, reputation management, and consumer retention.

Finally, scenario planning and contingency mechanisms strengthen operational readiness against external disruptions. Practices such as maintaining emergency stock reserves, identifying alternative suppliers, and preparing backup delivery options ensure continuity during supply shocks, economic turbulence, or unexpected operational challenges. Although often executed informally, these strategies reflect proactive risk awareness and preparedness among MSME operators. Collectively, the data indicate that culinary MSMEs rely heavily on adaptive, responsive, and experience-driven mechanisms rather than rigid standardized frameworks. Despite the limited formalization of risk practices, these strategies demonstrate contextual effectiveness and derive strength from continuous learning under uncertain and competitive market conditions. Beyond the primary findings obtained from field data, additional empirical studies from several Indonesian cities further illustrate how culinary MSMEs navigate market uncertainty. These studies show consistent patterns across different regional contexts.

The analysis of related studies from several Indonesian cities Surabaya, Bandung/Soreang, Denpasar, Malang, and Sleman/Yogyakarta shows consistent patterns in the ways culinary MSMEs experience and respond to market uncertainty. Although each regional context has its own characteristics, the evidence indicates shared challenges linked to demand volatility, digital competition, supply chain disruptions, and limited financial capability. In Surabaya, studies highlight that culinary MSMEs face rapid shifts in consumer preferences, intensified price competition, and fluctuations in raw material availability. Common adaptive responses include product differentiation, digital marketing, and the diversification of suppliers. Despite being mostly informal, these strategies have been shown to enhance market resilience (Lestari & Prasetyo, 2022; Putra & Wibowo, 2021). Findings from Bandung and Soreang emphasize strong consumer behavioral changes toward digital-based purchasing patterns. MSMEs adopt strategies such as product diversification, community-based marketing, and simple risk

registers to manage market and operational uncertainty. Digital engagement was shown to significantly reduce demand fluctuations and improve business continuity (Amalia & Herlina, 2021; Rahman et al., 2023).

In Denpasar, culinary MSMEs are highly exposed to tourism-driven demand cycles. The decline in tourist arrivals creates significant market uncertainty. MSMEs respond through menu innovation, family-meal packages, and digital payment systems such as QRIS, which enhance transaction certainty and consumer trust. These adaptations help stabilize sales under external shocks (Astuti et al., 2022; Suryani & Mahadewi, 2020). Studies in Malang reveal that culinary MSMEs face intense competition and fluctuating consumer demand. Many enterprises rely heavily on digital platforms, weekly trend monitoring, and customer-review analytics to maintain competitiveness. Human resource instability especially turnover among kitchen staff creates operational risks that directly influence product consistency and market performance (Hidayat & Arifin, 2021; Kurniawan et al., 2022). In Sleman/Yogyakarta, digital payment adoption and localized promotional approaches help MSMEs mitigate risks associated with shifting consumer expectations. QRIS adoption improves transaction efficiency and customer loyalty, while community-based marketing enhances visibility and stabilizes sales (Pramana & Nugroho, 2021; Wibowo & Handayani, 2022). Collectively, these regional studies show that Indonesian culinary MSMEs face three main categories of risk:
(1) Market risks, including demand volatility and shifting consumer tastes;
(2) Operational risks, including supply fluctuations and workforce instability; and
(3) Financial risks, including price increases and liquidity constraints.

Despite limited formal managerial structures, MSMEs across all cities rely on adaptive and experience-driven approaches such as digital engagement, supplier diversification, operational flexibility, and community-based strategies. These practices effectively reduce exposure to market uncertainty. However, the literature emphasizes the growing need for improved managerial training, structured risk planning, and enhanced digital competence to support long-term competitiveness (Isa, 2023; I. Wardana et al., 2022).

To complement the primary findings derived from field observations and interviews, this study also incorporates supporting evidence from previous empirical research conducted in several major Indonesian cities. These studies provide additional insight into how culinary MSMEs across different regional contexts experience market uncertainty and implement risk management strategies. By synthesizing patterns from Surabaya, Bandung/Soreang, Denpasar, Malang, and Sleman/Yogyakarta, the comparative perspective helps strengthen the external validity of the present findings and situates them within broader national trends. The following table summarizes the key sources of market risk, dominant mitigation strategies, and supporting literature for each city.

Table 2. Comparative Analysis of Market Risks and Risk Mitigation Strategies Among Culinary MSMEs Across Indonesian Cities

City	Main Sources of Market Risk	Key Risk Management Strategies	Supporting Studies (Citations)
Surabaya	Demand fluctuation, price competition, raw material volatility	Product differentiation, digital marketing, multi-supplier sourcing	(Lestari & Prasetyo, 2022; Putra & Wibowo, 2021)
Bandung / Soreang	Digital consumption shift, supply chain variation	Product diversification, community-based promotion, simple risk registers	(Amalia & Herlina, 2021; Rahman et al., 2023)
Denpasar	Tourism-driven demand fluctuations, external shocks	Menu innovation, QRIS adoption, online marketing	(Astuti et al., 2022; Suryani & Mahadewi, 2020)

Malang	High competition, unstable consumer demand, HR instability	Digital selling, trend monitoring, skill-based HR strategies	(Hidayat & Arifin, 2021; Kurniawan et al., 2022)
Sleman / Yogyakarta	Digital behavior shifts, customer loyalty fluctuation	QRIS adoption, community-based marketing, risk mapping	(Pramana & Nugroho, 2021; Wibowo & Handayani, 2022)

The comparative review presented in the table demonstrates that culinary MSMEs across diverse urban settings in Indonesia face remarkably similar categories of risk, including fluctuating consumer demand, supply chain instability, increasing digital competition, and financial vulnerability. Despite contextual differences, most enterprises rely on adaptive, experience-based strategies such as product diversification, digital engagement, supplier networking, and community-based promotion. Cities with strong tourism dependence, such as Denpasar, tend to emphasize digital payments and menu innovation, while areas with intense local competition, such as Malang and Surabaya, prioritize differentiation and multi-supplier procurement. Meanwhile, regions marked by rapid digital adoption, such as Bandung and Yogyakarta, highlight the importance of QRIS integration and digital marketing. These patterns reinforce the argument that while culinary MSMEs operate in varied environments, their approaches to navigating market uncertainty share common adaptive foundations aligned with the present study's findings.

The findings indicate that culinary MSMEs generally exhibit adaptive behavior when confronting market uncertainty, although the depth and formality of these practices vary significantly based on managerial experience, technological capability, and access to financial and human resources. Enterprises that demonstrated proactive innovation and strong engagement with digital technologies showed greater agility in responding to fluctuating consumer demands and competitive pressures. This aligns with previous studies asserting that digital adoption enhances operational efficiency, expands market reach, and constitutes a critical foundation for resilience among MSMEs in the digital economy (Q. Gao et al., 2022; I. Wardana et al., 2022). The ability to leverage online platforms, optimize promotional strategies, and implement direct-to-customer distribution models positioned these digitally competent businesses more competitively. Conversely, MSMEs with limited digital capacity exhibited slower responsiveness, reinforcing disparities in resilience levels. Research on the digital competitiveness of MSMEs also confirms that micro-level managerial discipline and ICT-based supervision improve adaptability and competitiveness in digital markets (Mardiah et al., 2025).

Operational flexibility also emerged as a central pillar of survival. Culinary MSMEs demonstrated rapid menu adjustments, dynamic pricing tactics, and diversification of sales channels such as pre-order systems and in-house delivery services to remain responsive to volatile market dynamics. These behaviors reflect scholarly perspectives emphasizing agility and real-time responsiveness as core determinants of business continuity under uncertain conditions (Alonso et al., 2022; Saad et al., 2022). Such adaptive capabilities are particularly essential for micro-enterprises, where rigid structures can heighten vulnerability. In this context, micromanagement practices such as daily digital monitoring, real-time task oversight, and data-driven decision processes have been shown to strengthen operational discipline and capability readiness in MSMEs (Mardiah et al., 2025).

Financial discipline further proved to be a decisive factor in sustaining operations during instability. MSMEs that adopted budgeting mechanisms, cost-control routines, and digital bookkeeping platforms were better able to maintain liquidity and withstand shocks. This aligns with prior studies highlighting financial literacy and structured cash-flow management as key contributors to MSME sustainability, particularly in resource-constrained settings (Roscoe, Cousins, et al., 2020; N. Suminah et al., 2022). With inflationary pressures and fluctuating global commodity prices following pandemic recovery and intensified by international conflicts such as the Russia–Ukraine war, disciplined financial practices have become increasingly essential (OECD, 2023). Recent financial innovation research also indicates that Sharia-compliant P2P lending can address MSME funding constraints and strengthen sustainability by providing accessible and ethically governed financing alternatives (Afrizal et al., 2024).

Collaborative partnerships also played a pivotal role in mitigating external risks and enhancing resilience. Culinary MSMEs frequently established supplier networks, mutual support coalitions with fellow entrepreneurs, and partnerships with digital delivery platforms to sustain supply chains and expand customer access. These results are consistent with research emphasizing the role of social capital and cooperative strategies in strengthening MSME resilience (I. Ali et al., 2021; Fares et al., 2022). In a volatile global environment shaped by supply chain disruptions and heightened logistical uncertainty, such relational interconnectedness provides an important buffer against external volatility (UNCTAD, 2023). The ability to collaborate externally complements internal capability development and supports MSMEs in navigating uncertainty through shared resources and information exchange.

Despite increasing recognition of risk management importance, formal frameworks remain minimally adopted among culinary MSMEs. Instead of structured plans or documented procedures, enterprises relied heavily on intuition, experiential learning, and iterative problem-solving. This aligns with emerging perspectives that informal, context-based risk responses can be more practical for micro-enterprises operating under resource scarcity (Isa, 2023; Mohezar et al., 2023). While such informal adaptation supports short-term survival, long-term resilience may require a gradual transition toward more systematic risk assessment and planning mechanisms. Strengthening structured knowledge systems, improving digital capabilities, and expanding institutional support including training programs, financial literacy initiatives, and digital transformation schemes could further bolster competitiveness.

These findings also echo global trends where MSMEs worldwide face heightened exposure to macroeconomic shocks, climate-related risks, and geopolitical instability. Reports from the Bank (2023) and (Bank, 2023) highlight that small enterprises in developing nations remain disproportionately affected by inflation, supply chain fragmentation, rising energy costs, and post-pandemic financial stress. Meanwhile, the global sustainability agenda, influenced by circular-economy and food-safety movements, increasingly pressures culinary businesses to adopt eco-friendly packaging, ethical sourcing, and waste-reduction measures (FAO, 2023; Organization, 2023). This global market shift underscores the need for Indonesian culinary MSMEs to enhance adaptability, digital readiness, and sustainability practices to remain competitive internationally.

Beyond the core findings of this study, broader empirical evidence from multiple Indonesian cities aligns strongly with the patterns identified in Medan Deli. The study conducted in Medan Deli emphasizes that entrepreneurial characteristics particularly risk-taking, leadership, and innovation play a crucial role in shaping MSME resilience under uncertain market conditions (Nainggolan et al., 2025). The research further highlights that limited digital literacy and suboptimal utilization of digital media restrict MSMEs' ability to respond effectively to market volatility, a challenge also observed in other regions (Adelin et al., 2021; Budianto & Suryadi, 2021). Additionally, the Medan Deli findings show that digital media, including social media marketing and online delivery platforms, significantly enhances market reach, customer engagement, and operational efficiency, making it a strategic tool for mitigating risk amid fluctuating demand (Gunawan & Monika, 2022; Rani & Wijaya, 2022). MSMEs that rely predominantly on traditional marketing approaches tend to have higher exposure to competitive pressures and market instability (Dewi, 2022). These insights align with evidence from Bandung and Yogyakarta, where digital adoption, agility, and adaptive business behavior are essential for maintaining stability in uncertain environments. Taken together, the Medan Deli study strengthens the conclusion that digital capability, entrepreneurial capacity, and adaptive strategies serve as core mechanisms of effective risk management among Indonesia's culinary MSMEs.

Despite offering relevant insights, this study has several limitations. The qualitative design and limited participant scope restrict the generalizability of the findings to wider MSME contexts. The use of self-reported interview data may introduce subjective bias, and the focus on urban-based culinary MSMEs may not fully represent conditions in rural or remote areas. Additionally, the study does not incorporate quantitative performance indicators that could strengthen the assessment of risk management effectiveness. These limitations suggest the need for broader, comparative, and mixed-method research in future studies.

CONCLUSION

This study concludes that culinary MSMEs in Indonesia operate within a highly volatile and rapidly evolving market environment shaped by fluctuating consumer preferences, rising production costs, intensifying digital competition, and persistent supply chain disruptions. Despite these challenges, culinary MSMEs demonstrate strong adaptive capacity through the use of informal, experience-driven risk management practices. These include digital engagement, menu and pricing flexibility, supplier diversification, cost efficiency measures, and the use of multiple sales channels to stabilize revenue. The findings reaffirm that agility, improvisational decision-making, and accumulated experiential knowledge form the core foundation of resilience among micro-enterprises, especially those with limited managerial structures and constrained resources. The evidence also highlights that digitalization plays an increasingly influential role in shaping business continuity. MSMEs that adopt digital tools such as social media promotion, online delivery platforms, QRIS payments, and digital bookkeeping experience greater stability in customer engagement, operational efficiency, and financial transparency. However, gaps in digital literacy, resource access, and technological readiness continue to hinder adoption for many operators, resulting in uneven levels of resilience. Strengthening digital capability is therefore essential for enabling MSMEs to navigate market uncertainty more effectively. Additionally, financial discipline, collaborative partnerships, and human resource development emerge as important elements of risk management. MSMEs with stronger financial planning routines, diversified supplier networks, and invested employee skills are better prepared to withstand external shocks. These findings underline the importance of enhancing both internal capacities and external collaborative ecosystems to support long-term business sustainability.

Comparative evidence from multiple Indonesian cities including Surabaya, Bandung/Soreang, Denpasar, Malang, and Sleman/Yogyakarta further confirm that similar patterns of risk and adaptive responses occur across regions. This indicates that the challenges faced by culinary MSMEs are structural rather than location-specific, and that experience-based, flexible, and digitally supported strategies consistently form the backbone of resilience across diverse contexts. Based on these findings, several recommendations can be made. Culinary MSMEs should strengthen managerial and financial competencies through continuous learning and structured capability-building programs. Increasing the use of digital tools in marketing, operations, and financial recording will improve efficiency and responsiveness. MSMEs are also encouraged to maintain diversified supplier networks, adopt simple risk assessment mechanisms, and implement scenario-based planning to improve preparedness. On a broader scale, institutional support through government agencies, business development centers, and academic partnerships should prioritize digital transformation, financial literacy, and risk management training rather than relying solely on financial assistance. Future research is encouraged to develop scalable digital risk management frameworks tailored specifically to the operational realities of culinary MSMEs, allowing more evidence-based improvements in sustainability and competitiveness.

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