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Original Article

Halal Logistic in Indonesian Culinary MSMEs: An Intersection Between Operational Performance and Sharia Law

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Abstract

Halal logistics plays an important role in ensuring compliance with sharia law in Indonesia's culinary Micro, Small, and Medium Enterprises (MSMEs). Unlike previous research that generally examined halal logistics in large-scale industries, this study specifically focuses on the operational performance of culinary MSMEs, a sector that faces unique challenges in certification, traceability, and risk management. This research uses a quantitative approach to examine the mediating effects of halal certification, supply chain traceability, and halal risk management on operational performance. Data were collected from 292 culinary MSMEs across Indonesia through structured surveys and analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). The research results show that halal logistics practices significantly mediate the relationship between halal certification and operational performance ($\beta = 0.379$; $p < 0.001$), while supply chain traceability ($\beta = 0.464$; $p < 0.001$) and risk management ($\beta = 0.325$; $p < 0.001$) also have strong positive effects. This research model is able to explain 53.4% of the variation in operational performance ($R^2 = 0.534$), indicating moderate predictive power. These findings confirm the novelty of research in the culinary MSME sector and provide quantitative evidence that halal logistics can improve operational efficiency while maintaining sharia compliance. Practical recommendations are provided for policymakers and business practitioners to develop sustainable halal supply chains, thereby strengthening Indonesia's position in the global halal economy.

Keywords: Culinary MSMEs, Halal Logistics, Operational Performance, Sharia Law.

1. Introduction

Expansions in the global halal sector have been driven by two main factors: the increasing population among Muslim communities and the rising consumer interest in purchasing halal-certified products. According to Pratikto et al. (2021), this growth is not only explained by demographic shifts but also by the heightened attention to halal commodities among broader consumer groups. The State of the Global Islamic Economy Report further highlights the scale of this development, estimating the global halal industry to be worth more than USD 7 trillion, with projections surpassing USD 10 trillion by 2030. Importantly, this growth trajectory is not limited to Muslim consumers. Studies reveal that non-Muslim populations are also drawn to halal products due to perceptions of higher quality, enhanced safety, and more ethical manufacturing processes (Iranmanesh et al., 2022; M. M. Rahman et al., 2024). The halal system itself spans multiple domains, including food, cosmetics, pharmaceuticals, and logistics, making it a central component of the modern global economy (Idris et al., 2021; M. T. Khan et al., 2020).

Halal food and beverage is one of the major components of the global halal economy (Millatina et al., 2022). Several studies report that the sector amounted to over one trillion USD in 2022 and will gain two trillion USD by 2032. This trend cannot be limited to states where the larger population consists of Muslims only; non-Muslim countries are also getting into the halal business by adopting halal-friendliness policies and infrastructures as a means of meeting with their increased demands (Daud et al., 2023; Kadir et al., 2016; Omar & Rahman, 2018). At the same time, the increasing consumer and commercial insight into the halal standards introduced the need to expand stronger halal logistics systems that can keep the supply chain (and related parties) in compliance and integrity (Haleem et al., 2018; Mohamed Syazwan Ab Talib et al., 2021).

Indonesia is in a strategic place in the global halal industry since it is the country with the largest Muslim population in the world. The Indonesian government has also developed an extensive system of halal certification in order to provide impetus to the sector and position the country as a leading player in that environment (Hidayat et al., 2025; Mujahidin, 2020; Sarasi et al., 2025). According to the Halal Product Assurance Law, every food, drink, and other consumable should be acquiring halal approvals, which means that it would promote companies to go halal based (Atieqoh et al., 2023; Pratikto et al., 2021). However, even at the back of such government efforts, it is not clear yet whether the entire spectrum of businesses in Indonesia will be compliant especially with the overwhelming Micro, Small, and Medium enterprises (MSMEs) (Febrimayanti, 2020; Tambunan, 2019). In the case of Indonesia, MSMEs have become an essential aspect of the country in terms of employment and gross domestic product, especially when it comes to the culinary industry. However, so far, it has not been possible to meet halal compliance in this sub-sector, and this may be attributable in large part to a shortage of money and operations, financial and operational inadequacy, and inadequate system of tracking the supply chain (I Giyanti et al., 2020; Riananda et al., 2022). The adoption of effective halal logistical processes throughout the MSMEes is also necessary to maintain the integrity of the halal products and competitiveness in the market thereby a solution towards these logistical barriers is important in ensuring efficiency and sustainability operations all through the industry. The first regards lamentations (Haleem et al., 2021; Suhaiza Zailani et al., 2017).

Despite increasing global and national attention to the halal industry, previous research in Indonesia has largely focused on large-scale, export-oriented manufacturing sectors, leaving micro, small, and medium enterprises (MSMEs) underexplored. While some researchers have studied halal certification or supply chain traceability separately, there is limited empirical evidence on how a comprehensive halal logistics framework that integrates certification, supply chain traceability, and halal risk management affects the operational performance of culinary MSMEs. Moreover, research rarely addresses these factors simultaneously within the context of Indonesia's Halal Product Assurance Law, creating a knowledge gap in understanding how these practices can ensure Sharia compliance and improve operational efficiency. This gap underlies the urgency of this research, which aims to provide actionable insights for MSMEs and policymakers to strengthen halal logistics in the culinary sector.

The researcher seeks to determine the connection between the halal logistics practices and performance of operations of Indonesian culinary MSME in the context of sharia and business activity. This study contributes to the literature by shifting the focus of halal logistics research from large-scale industries to the underexplored context of Indonesia's culinary MSMEs. The novelty lies in developing and testing a quantitative model that integrates halal certification, supply chain traceability, and halal risk management as mediating factors

affecting operational performance. This research provides robust empirical evidence that halal logistics not only ensures Sharia compliance but also enhances operational efficiency, a dual focus rarely addressed in previous studies. Critical areas of interest are; halal certification, chain traceability, and commitment to adhere to Islamic values as the reasons behind efficient operations. The research aiming at analyzing these factors aims to suggest the actionable insights to the MSMEs, policymakers, and industry stakeholders to reinforce the halal logistics frameworks to maintain sustainable growth of the halal economy in Indonesia.

2. Literature Review

2.1. Halal Certification

Halal certification is a formal confirmation that food and other products relate to the Islamic dietary regulations, which means that the goods can be displays as permissibly consumed by Muslim people (Latif, 2020; Sumpin et al., 2019). Halal certification can play an important role in increasing brand trust and perceived quality by consumers in the case of Micro, Small and Medium Enterprises (MSMEs) (Febrimayanti, 2020; Indrasari et al., 2020). Various other studies discovered that there are positive effects of the halal certification on the innovative performance of MSMEs (Khan, 2019; Othman, 2017; Qurtubi, 2023; Rafiki, 2016; Rojak, 2025; Surjandari, 2025; Talib, 2016; Tumiwa, 2023), thus leading to the notion that certified firms tend to involve themselves in both product and process innovations to ensure consumer compliance and fulfill their obligations (Atieqoh et al., 2023; Qurniawati & Nurohman, 2021).

Nonetheless, the question about the influence of the halal certification on the financial performance remains controversial. There was no substantial change in the profit margins after acquiring a halal certification and before and after acquiring one or no halal certification (Hayat et al., 2013; Ratnasari et al., 2019). This discovery indicates that although the process of halal certification can help to build and maintain brand awareness and confidence in the consumer, it would not necessarily amount to instant profit accruals. Thus, they should view halal certification as one of the elements of a comprehensive competition-seeking approach in the market, but not a single means to ensure financial growth (Suriyani et al., 2024).

Halal certification is instrumental in terms of defining halal logistics practices by making sure that the practices undertaken throughout the supply chain can be kept in line with Islamic principles (Masood, 2022; Mustun, 2021). The halal certification process motivates companies to impose strict measures on the procurement process, storage, handling and transportation of products so that they remain halal (Tieman & Ghazali, 2014). The validated businesses have to adhere to strict halal criteria which implies implementing an organized logistics approach, such as product segregation, hygiene, and documentation (Haleem et al., 2021; Jalil, 2018).

Besides, halal certification offers a guideline through which the MSMEs can enhance their logistical operation through the cultivation of culture of compliance and operational excellence. By attaining a halal certification, business organizations have better chances to detail their practices towards meeting the halal logistics needs, thereby guaranteeing an end to end adherence (Ida Giyanti et al., 2020; Haleem et al., 2018). It indicates that the existence of halal certification is one of the forces that promote its creation and realization of efficient practices in halal logistics. Therefore, a hypothesis can be formulated as follows.

H1: Halal certification has a positive impact on halal logistics practices

2.2. Supply Chain Traceability

Tracing the supply chain is the capability to keep a track and ensure the history of its location and how the products are used in the supply chain (Cader et al., 2025). The use of effective traceability systems is vital in halal products to be able to guarantee halal standards in everything up to the end consumption (Masudin et al., 2022; Yanti et al., 2022). According to Dashti et al. (2024) and Jasman & Ariffin (2021), researchers developed a halal traceability model based on Causal Loop Diagram (CLD) methodology in case of MSMEs in Indonesia, which denotes the necessity of stakeholder functions and business procedures on the preservation of halal integrity.

MSMEs may not find it easy to implement strong traceability systems because they have limited resources and technologies capabilities (Handayani et al., 2020; Indrasari et al., 2020). Nevertheless, the solutions lie in the development of digital technologies: blockchain is one of them. Blockchain offers the opportunity of introducing higher levels of transparency and trust within halal supply chains, which will, by extension, help MSMEs resolve traceability issues and confirm the authenticity of the products (Ellahi et al., 2024; Rahmawati & Subardjo, 2023).

Supply chain traceability enhances efficiency because it allows businesses to monitor the movement of products and check whether they are follows halal or not. Traceability systems decrease the amount of error and increase the efficiency of processes; also, they result in overall effectiveness of operations (Rejeb et al., 2020; Yanti et al., 2022). Nevertheless, to make this process of the use of traceability systems effective, investment must be made in technology and training. This might imply a struggle of MSMEs without access to financial and technical resources to implement traceability solutions and, therefore, impede the improvement of operational performance (Ada et al., 2021; Muhamad et al., 2020). Hence, the following hypothesis is derived.

H2: Supply chain traceability positively influences operational performance

2.3. Risk Management

Risk management refers to risk identification, evaluation, and mitigation risks that may jeopardize halal status of products. In the case of MSMEs, particularly in the culinary business, risk management is a need of the hour to avert contamination and assure satisfactory adherence to halal standards. Researchers suggested that the integrity of halal food supply chain could be proposed in multiple steps and with a focus on the entire process of risk management to avoid losing consumer trust and exit the market (S. Khan et al., 2022; Lestari et al., 2021)

Although it is very crucial, a lot of MSMEs still face the problem of enforcing adequate risk management systems because of the available resources and expertise. The training programs and governmental support through capacity-building initiatives are required to help MSMEs acquire the needed skills and knowledge in managing the risks associated with the concept of the halal so that they could handle them successfully. These endeavors can assist the MSMEs to improve their performance in carrying out their operations and meet the standards of halal so that they can compete effectively in the market (Muhamad et al., 2020; Suriyani et al., 2024).

The activities of risk management assist the MSMEs to detect and avoid non-compliance risks that may disfavor their reputation and business operation. MSMEs may use risk management measures to improve the quality of the product and performance of operations (Hirawati & Sijabat, 2020; Krüger & Meyer, 2021). Conversely, lack of proper risk management may cause problems in operations and consumer trust. To help sustain the compliance and competitiveness in the halal market, MSMEs have to employ proactive risk

assessment frameworks (Lestari et al., 2021; Wahyuni et al., 2021). Accordingly, the research hypothesis is proposed as follows.

H3: Risk management positively affects operational performance

2.4. Adherence to Islamic Principles

The need to follow Islamic standards in business comes not only with the invention of halal certification but also assures ethical conduct, honesty, and accountability (A. N. Ahmad et al., 2020). In case of MSMEs, business practices that conform to the ideals of Islam tradition bring about reputation and consumer loyalty. Investigators examined the impacts of halal literacy on the dedication of Indonesian culinary MSMEs to the standards of halal practice and revealed that the literacy, attitudes, and spirituality of business owners influences their commitment to the halal practices considerably (Ariff et al., 2021; Usman et al., 2022).

Nonetheless, it may not be easy to attain flawless compliance with the Islamic norms because of conflicting interpretations and the volatile nature of the business environment. It is vital to be continually taught and actively contact with the Islamic scholars and halal certification organizations to maintain the idea that MSMEs are consistent and receptive to changing demands and requirements of consumers (Anwari & Hati, 2021; Hardiansyah & Adirestuty, 2021; Muhamed et al., 2022).

Observing Islamic principles also means that the business conducts ethically and follows halal requirements hence determining the effect on their logistics. MSMEs that fit their operations in accordance with rules set by Islam have better chances of adopting practices of halal logistics, which includes the separation of halal and non-halal products, ensuring adherence to hygiene requirements (Haleem et al., 2018; Ngah et al., 2014). Nevertheless, some difficulties can be explained by the fact that the understanding of the Islamic principles differs in the regions and industries. To adhere to the religious demands and compliance requirements, MSMEs should refer to the Islamic scholars and halal certification agencies so that the logistical service practices of all these companies can be suitably modified (Haleem et al., 2021; Manan et al., 2017). Given the discussion, the hypothesis is articulated as follows.

H4: Adherence to Islamic principles positively influences halal logistics practices

2.5. Halal Logistics Practices

Halal logistics practice is the way in which the movement, storage and handling of products is systematically managed to preserve the integrity of products as halal. This kind of management includes separation of halal and non-halal products, carrying out cleaning procedures, as well as complying with the standards of halal along the supply chain. Empirical investigations emphasize the fact that high-quality halal logistics is a necessity in order to maintain the integrity of the product and customer trust (Karia, 2022; Soon et al., 2017).

Halal logistics practice may be especially daunting on the micro, small and medium-sized enterprises (MSMEs) due to lack of resources and little or inadequate infrastructure. However, practising them may help to enter the wider markets and provide greater efficiency in operation. The efforts by the government, as well as industry working together, are central in facilitating the startups and maintenance of the halal systems of logistics, which helps to feed or grow the overall halal industry (Mohamed Syazwan Ab Talib et al., 2021; Suhaiza Zailani et al., 2017).

Halal logistics practices promote the integrity and quality of products thus raising customer satisfaction and efficiency of operation (Fathi, 2016; Mahidin, 2017; Ruangsriroj, 2022; Wong, 2023; Zailani, 2017). The ability to segregate, handle, and store foodstuffs in an effective way reduces the chances of cross-contamination, hence halal compliance (Haleem et al., 2021; Okdinawati et al., 2021). Issues like high expenses and scarcity of resources, and

poor infra structure can affect the ability of the MSMEs to implement fully on the halal logistics. The right choice of strategic partnerships with logistics companies and regulatory organizations can help in reducing such limitations and enhancing the performance of operations (Sham et al., 2017; Ziegler et al., 2022). In such a way, the given hypothesis is put forward.

H5: Halal logistics practices positively affect operational performance

2.6. Operational Performance

The degree to which organisational processes efficiently and effectively result in the delivery of products or services has been described as its operational performance. In the halal sector, the idea of halal certification, supply chain traceability, risk management, and the Islamic practices impact the operational performance (Lestari et al., 2021; Maharani et al., 2023). Regarding the empirical research, halal certification has a positive effect on innovative performance, but its direct impact on the financial performance is minor, which implies that an increased operational efficiency will not necessarily bring instant financial gains and income (Qurniawati & Nurohman, 2021; Mohamed Syazwan Ab Talib et al., 2017).

The best long-term performance in the operational side requires the integrated framework to place the halal compliance as part of the overall business strategies. Investments in technologies, employee education and streamlining of their processes are crucial in increasing the efficiency and meeting halal standards. These measures are bound to create long-term benefits such as the increase of customer satisfaction and market expansion rates as well as a stable growth pattern (Z. Ahmad et al., 2020; Haleem & Khan, 2017).

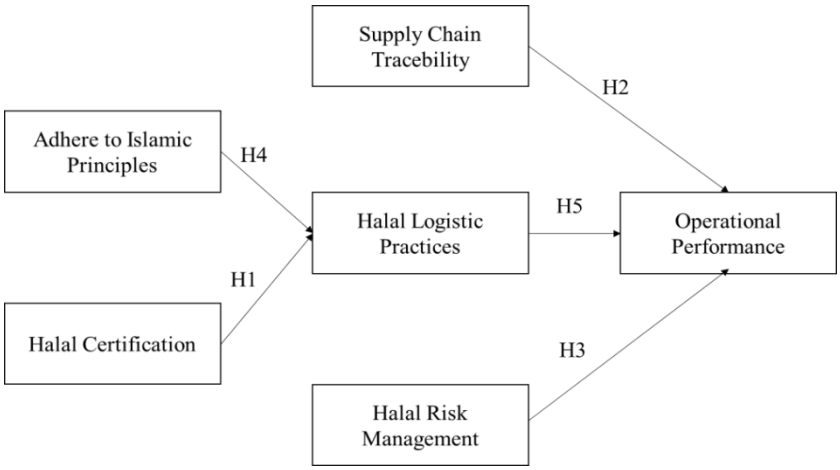

Figure 1. Research Model

3. Methods

This research uses a quantitative design with data collection through structured questionnaires distributed to 292 culinary MSMEs in Indonesia. The sampling technique used is non-probability purposive sampling, which was deliberately chosen because the research objectives require respondents who have knowledge and decision-making authority related to halal logistics and operational processes. The selection of this method is also based on the absence of a comprehensive national sampling frame for culinary MSMEs and the wide geographical distribution of the population. The inclusion criteria for respondents were established as follows: (i) the business has been operating for at least two years, (ii) falls under the category of micro, small, or medium enterprises according to the classification of the

Ministry of Cooperatives and SMEs, (iii) has active involvement in halal logistics activities, and (iv) owners, managers, or senior executives are directly involved in operational and logistics decision-making. Representativeness was maintained by ensuring proportions of micro, small, and medium enterprises comparable to the national MSME distribution based on Statistics Indonesia (BPS) data, as well as involving respondents from various provinces that have active culinary clusters. The collected data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS software, as this method is appropriate for predictive research models, complex relationships, and data that may not fully meet multivariate normality assumptions.

Table 1. Respondents' Profile

Parameters		Number	Percentage
Business Size	Micro-sized Businesses	152	52.05%
	Small-sized Businesses	89	30.47%
	Medium-sized Businesses	51	17.46%
	TOTAL	292	100%
Position	CEO/Owner	194	66.44%
	Manager/Supervisor	54	18.55%
	Employee	44	15.01%
	TOTAL	292	100%

The timeframe utilized in the research is cross-sectional and its sample size was selected through non-probability purposive sampling. Descriptive data, correlations and regression models are used to analyse them. The measure will be in the form of a Likert scale of 1 = ("Strongly Disagree") to 5 = ("Strongly Agree"). Such analyses explain relationships between halal logistics and the operational performance, identify predictors of the operational performance and quantify the extra explanatory power of the logistical variables. The findings and theory and practice implications are to be discussed below.

Operational performance encompasses organizational effectiveness and efficiency in executing operational processes to obtain and maintain competitive advantage (Liu et al., 2020). The measurement indicators used refer to Geminarqi & Purnomo (2023) and Ramaa et al. (2013), including operational cost reduction, improved delivery reliability and speed, and enhanced inventory management effectiveness. Risk management is defined as a systematic process of identifying, analyzing, and controlling potential hazards that may disrupt business process continuity (Hudin et al., 2015), with measurements based on Lestari et al. (2023) and Wahyuni et al. (2021), encompassing identification of potential halal risks in the supply chain, implementation of risk mitigation techniques, and availability of contingency plans for halal-related incidents. Halal logistics practices refer to the application of halal principles in managing transportation, warehousing, and inventory (Haleem et al., 2021), with constructs adapted from Karia (2019) and Ziegler et al. (2022), including separation between halal and non-halal products in logistics operations, compliance with halal requirements in logistics and storage, and implementation of cleanliness and hygiene protocols.

Furthermore, traceability in supply chains aims to minimize risks and enhance transparency through monitoring product origins until they reach consumers (S. Khan et al., 2018), measured with indicators adapted from Bux et al. (2022) and Muhamad et al. (2020), namely the ability to trace and authenticate halal product origins, availability of real-time data for halal product monitoring, and utilization of technologies such as blockchain or RFID for halal traceability. Halal certification is defined as formal recognition of halal standard compliance by authorized institutions (Ratnasari et al., 2019), with indicators from Atieqoh et

al. (2023) and Daud et al. (2023) that include possession of valid halal certificates, compliance with halal regulations, and the influence of certification on consumer trust and market access. Compliance with Islamic principles refers to the level of business conformity to Islamic ethical, legal, and operational norms (Rahman et al., 2017), measured based on Abubakar (2016) and Rasid et al. (2022) through corporate commitment to Islamic ethics and principles, implementation of sharia-compliant financial and operational methods, and promotion of employee awareness and compliance with Islamic business principles.

In the current research, structural equation modelling, a version of partial least squares (SEM-PLS) with Smart PLS version 3.3.3 software was used to analyse the data gathered. The SEM-PLS is a statistically strong approach to studying several relationships concurrently and assessing complicated models, which includes it as a relevant strategy to the current inquiry. The researcher initiated the analysis process with a confirmatory factor analysis (CFA), which was intended to check the measurement model, as well as determine the reliability and validity of the constructs (Hair et al., 2017). Afterwards, the structural model was put under a strict review to determine the direct and indirect impact of halal logistics on the operation performance of the micro, small, and medium-sized enterprises (MSMEs). The findings of the results support the hypothesised relationship amongst the variables, and the findings provided actionable insights to MSME managers and policymakers.

4. Results and Discussion

4.1. Research Results

Various criteria have been borrowed to evaluate the validity of the given measurement model. Table 2 corroborates the fact that the standardized loadings on the outside factors employed in testing the convergent validity are quite hardy. All their loadings are above the target level of 0.70 ($p<0.001$) according to Hair et al. (2017).

Table 2. Factor Loading

Items	Operation Performance	Halal Logistics	Risk Management	Supply Chain Traceability	Halal Certification	Islamic Principle
OP1	0.831					
OP2	0.841					
OP3	0.771					
HL1		0.882				
HL2		0.787				
HL3		0.795				
RM1			0.796			
RM2			0.884			
RM3			0.855			
TS1				0.916		
TS2				0.947		
TS3				0.946		
HC1					0.880	
HC2					0.846	
HC3					0.789	
IP1						0.802
IP2						0.776
IP3						0.759

The analysis results show that all variables meet reliability and validity criteria, with Composite Reliability (CR) values above 0.7, Cronbach's Alpha (CA) exceeding 0.6, and Average Variance Extracted (AVE) above 0.5, in accordance with Hair et al. (2017) guidelines.

Discriminant validity was also achieved based on the Fornell & Larcker (1981) criteria. Additionally, the collinearity test confirmed that all Variance Inflation Factor (VIF) values ≤ 5, indicating that the model is free from multicollinearity and common method bias, consistent with Kock (2015) recommendations.

Table 3. Measurement Model

Construct	Item	Composite Reliability	Cronbach Alpha	AVE	VIF
Operation Performance	OP1	0.877	0.790	0.704	1.986
	OP2				1.658
	OP3				1.565
Halal Logistics	HL1	0.955	0.800	0.877	3.337
	HL2				4.179
	HL3				4.018
Risk Management	RM1	0.855	0.752	0.664	1.383
	RM2				1.699
	RM3				1.570
Supply Chain Traceability	TS1	0.883	0.800	0.715	1.575
	TS2				2.126
	TS3				1.770
Halal Certification	HC1	0.923	0.789	0.822	1.832
	HC2				1.934
	HC3				1.959
Islamic Principle	IP1	0.898	0.765	0.775	3.556
	IP2				3.409
	IP3				3.782

The metric of Stone Geisser is commonly used due to the fact that R-squared only informs us about the predictions made on the sample (Geisser, 1974; Stone, 1974). Q^2 value exceeding zero by a statistically significant difference measures the decreased gap between expected and actual values hence it gives evidence to the accuracy and significance of forecasts (Chin, 1998). Hair et al. (2017) also pose other thresholds when a Q^2 value of greater than 0.00, 0.25, and 0.50 indicates poor, moderate, and high predictive importance of the PLS path model, respectively. The PLS-SEM gave the result that the R^2 of the endogenous variables were greater than 0.50 but less than 0.75 indicating that those variables were categorized as moderate. The Q^2 outcomes proved that Operational Performance (Q square = 0.407) of the MSME had an admirable ability to predict the route model.

Table 4. Predictive relevance based on R^2 and Q^2

	R Square	R Square Adjusted	Q^2 = (1-SSE/SSO)	Predictive Relevance
Operation Performance	0.534	0.530	0.407	Yes
Halal Logistic Practices	0.406	0.404	0.364	Yes

A bootstrapping process was utilized in order to examine the relevance of the route coefficients on a set of 5000 random subsamples. Five hypotheses were examined in the present study, and all of them were rejected, meaning that the hypothesis testing was conducted with the standard level of significance of 0.05.

Table 5. Hypothesis Testing Results

	Hypotheses	Original Sample/β	p- Value	Decision
H1	Halal certification → halal logistics practices	0.225	0.001*	Accepted
H2	Supply chain traceability →operational performance.	0.464	0.001*	Accepted
H3	Risk management → operational performance	0.325	0.001*	Accepted
H4	Adherence to Islamic principles → halal logistics practices	0.445	0.001*	Accepted
H5	Halal logistics practices positively → operational performance	0.379	0.001*	Accepted

Note(s): *significant $p < 0.05$

Hypothesis testing in Table 5 shows that all relationship paths in the model are significant at $p < 0.05$, indicating strong empirical support for the research framework. Halal certification ($\beta = 0.225$; $p = 0.001$) and adherence to Islamic principles ($\beta = 0.445$; $p = 0.001$) positively influence halal logistics practices, while supply chain traceability ($\beta = 0.464$; $p = 0.001$) and risk management ($\beta = 0.325$; $p = 0.001$) are proven to enhance operational performance. The halal logistics practices variable serves as a significant driver of operational performance ($\beta = 0.379$; $p = 0.001$). These findings underscore that the combination of halal certification compliance, Islamic principle implementation, supply chain traceability, and effective risk management constitutes an important foundation for optimizing operational performance of halal culinary MSMEs in Indonesia.

While previous halal logistics frameworks positioned halal certification as the central driver of logistics performance, our findings challenge this view by showing that, in the MSME context, certification contributes indirectly and modestly compared to supply chain traceability. This shift suggests a modification of the conceptual framework: certification functions more as a legitimating mechanism (institutional theory) rather than an operational capability. In contrast, traceability emerges as a dynamic capability that directly enhances efficiency and consumer trust, thereby extending the framework to incorporate capability-based perspectives. Similarly, the strong role of adherence to Islamic principles underscores the need to integrate normative institutional mechanisms into halal logistics models, as values-based motivations can substitute for formal structures in shaping compliance behavior. Collectively, these findings extend existing frameworks by repositioning halal logistics as the outcome of an interplay between coercive mechanisms (certification), normative mechanisms (Islamic values), and capability-based mechanisms (traceability and risk management), offering a more context-sensitive model for MSMEs.

4.2. Discussion

The findings of this study indicate that supply chain traceability exerts the strongest influence on operational performance among Indonesian culinary MSMEs, surpassing both halal certification and risk management practices. This diverges from prior studies (Tieman et al., 2012; Suhaiza Zailani et al., 2017), which typically placed halal certification at the core of halal logistics performance. The difference can be understood through the lens of dynamic capabilities theory, which argues that firms facing resource constraints rely more heavily on adaptive capabilities that directly enhance efficiency. For MSMEs, traceability often supported by simple digital tools such as QR codes or mobile applications functions as a dynamic capability that not only ensures compliance but also immediately improves operational

reliability, reduces errors, and strengthens consumer trust. By contrast, certification operates more as a legitimating mechanism within institutional theory, enhancing credibility with external stakeholders but contributing less directly to day-to-day operational efficiency.

This study also confirms the mediating role of halal logistics practices between certification and performance, yet the effect remains modest. This suggests that certification alone does not guarantee performance gains unless translated into structured logistics routines, such as segregation of halal and non-halal products or hygiene safeguards. While Tieman et al. (2012) emphasized certification as a regulatory tool for protecting halal integrity, our findings refine this view by demonstrating that, in resource-constrained MSMEs, certification's impact is contingent upon the effective enactment of operational procedures. This nuance advances institutional theory by showing that coercive pressures (certification requirements) are insufficient in small firms unless complemented by technical capabilities (traceability systems, risk management practices).

The strong role of adherence to Islamic values further contributes to theoretical development. In line with normative institutional theory, values such as fairness, integrity, and social responsibility act as internalized drivers of halal logistics practices. This differs from prior research that emphasized external regulatory pressures, suggesting that in the MSME context, values-based mechanisms may substitute for formal structures, ensuring compliance and building consumer trust. In this way, the study extends the halal logistics literature by integrating both technical (traceability, risk management) and normative (Islamic values) dimensions into a hybrid framework more suited to small-scale enterprises (Salah et al., 2019).

From a theoretical perspective, these results expand the conceptual framework of halal logistics by emphasizing the repositioning of performance determinants in the MSME context. Traceability supported by simple tracking technology proves to be a dynamic capability that can convert compliance into operational advantage, surpassing the effects of formal certification that tend to be legitimative. These findings simultaneously indicate that the integration of technical factors (traceability, risk management) with normative factors (adherence to Islamic values) produces a halal logistics model that is more relevant for small-scale business sectors.

The practical implications that can be derived include the need for policy priorities on facilitating the digitalization of MSME halal supply chains, for example through accessible and low-cost national tracking platforms. Halal certification subsidy programs should be integrated with mandatory training on halal SOP implementation, so that certification does not merely remain an administrative document. The results also show that risk management training specific to potential cross-contamination, cold chain, and backhauling needs to be a primary intervention. Additionally, value-based interventions through community development and peer learning can strengthen the internal motivation of MSME actors to implement halal standards without fully depending on external control.

The novelty contribution of this study lies in mapping intervention priorities based on the relative strength of influence between variables. With the highest β for traceability, this research offers an applicable priority-setting framework for regulators and business actors: starting from improving measurable and traceable operational processes, then moving toward formal legitimacy through certification. Research limitations include a cross-sectional design that cannot reveal long-term causal relationships, the use of self-report data that potentially creates perception bias, and limited generalization due to non-probability purposive sampling. Future research agenda is recommended to use longitudinal or experimental designs, conduct multi-group analysis based on business size and region, and test the role of moderator variables such as digitalization level and mediators such as consumer trust. Configuration

approaches such as fsQCA are also suggested to identify adequate factor combinations for improving MSME halal logistics performance.

5. Conclusion

This research confirms that halal certification, supply chain traceability, risk management, and adherence to Islamic principles play important roles in enhancing the operational performance of Indonesian culinary MSMEs. Certification facilitates the establishment of structured logistics procedures and compliance with cleanliness standards, while traceability and risk management directly improve transparency, reduce errors, and sustain consumer trust. Beyond these operational insights, the theoretical contribution of this study lies in repositioning the drivers of halal logistics performance in the MSME context. Unlike previous frameworks that emphasized certification as the dominant determinant, this research findings highlight that traceability functions as a dynamic capability with the strongest effect on performance, while certification primarily serves as a legitimating mechanism. Moreover, the results integrate technical mechanisms (traceability, risk management) with normative mechanisms (Islamic values), demonstrating that halal logistics is shaped not only by compliance but also by value-driven motivations.

Practically, these findings imply the need for stronger collaboration between MSME actors, government, and certification institutions to provide incentives, training, and access to digital tools that enable traceability and risk management. Future research is encouraged to explore emerging technologies such as blockchain and IoT for real-time halal assurance, as well as to apply longitudinal or configurational methods to capture the complex interaction of institutional, technical, and normative drivers.

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