Ecoment Global Journal

Vol. 10 No. 3 (2025): Edisi Desember 2025
ISSN. 2540-816X E-ISSN: 2685-620

Risk Management of Grocery Businesses in the Tegal Region Using an ISO 31000-Based Approach

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Abstract

Objective: This study aims to analyze various risks faced by grocery businesses in the Tegal area using an ISO 31000-based risk management approach.
Design/Methods/Approach: The research method used was descriptive quantitative, involving 50 MSME grocery business actors in the Tegal area who were selected using *purposive sampling* techniques. Data was collected through questionnaires using a Likert scale and analyzed through the stages of identification, analysis, evaluation, and risk management in accordance with the ISO 31000 standard.
Findings: The results of the study show that six major risks are in the high category, namely the emergence of competitors, customer decline, theft, changes in government regulations, and price fluctuations. Four other risks are in the moderate category, namely recording errors, damaged or expired goods, stock shortages, and disaster risks. Risk management is largely at a high level of efficiency, although some risks are still at a moderate level and still require mitigation reinforcement.
Originality/Value: This study provides added value through the application of ISO 31000 to small and medium-sized grocery businesses, a context that has not been widely studied. This study presents a more structured risk mapping, thereby enriching the literature on risk management in small-scale retail businesses.
Practical/Policy implication: The application of ISO 31000 helps grocery businesses determine risk priorities, improve risk management effectiveness, and increase business operational resilience to business environment uncertainties.

Keywords: ISO 31000, Risk Management, MSMEs, Grocery Businesses

JEL Classification: M42, M48 [author should add 1-3 JEL classification number, information guide for the Journal of Economics Literature (JEL) can be found at https://www.aeaweb.org/jel/guide/jel.php]

Received, Desember 12, 2025; Received in revised form: Desember 17, 2025 Accepted: Desember 26, 2025

Vol. 10 No. 3 (2025): Edisi Desember 2025
ISSN. 2540-816X E-ISSN: 2685-620

Introduction

Retail, which comes from the French term *"ritellier"* and *the* English *term "retail,"* refers to the process of breaking something down into smaller parts and involves the direct sale of goods or services to end consumers. In the business world, retail serves as a bridge between producers, distributors, and customers, with small transactions occurring frequently and taking place in locations that are easily accessible to the public. According to the Director General of Domestic Trade (1997), the retail trade category ranges from traditional markets to modern markets. In the context of the traditional retail sector, grocery businesses not only play a role in meeting the basic needs of the community, but are also an important element in the MSME ecosystem that dominates the Indonesian economy. Grocery businesses provide basic necessities such as rice, sugar, cooking oil, and eggs at affordable prices and with a simple administrative process, making them easily accessible to the public. However, despite their crucial role in meeting basic needs, grocery businesses still face various challenges in terms of business. In the study "The Impact of Risk on SME Growth," it was found that operational, liquidity, interest rate, and marketing risks significantly affect SMEs' ability to grow (Alfida Aziz1, Dewi Cahyani Pangestuti2*, 2024) .

In addition, grocery businesses face risks from both internal and external environments, such as raw material disruptions, price fluctuations, and operational and reputational risks (Putri Kholisoh et al., 2025) . The risk of price fluctuations is also a major threat, where natural, geopolitical, and government policy factors are the causes of price fluctuations(Zebua et al., 2025) . This condition shows that the continuity of the grocery business does not only depend on the availability of goods, but also on external factors that are difficult to predict. Therefore, managing risk is very important in order for the business to continue to run effectively and profitably. This study aims to provide an understanding of the types of risks and how to overcome them theoretically and practically. In addition to contributing to the academic world, the results of this study also help business actors apply structured and sustainable risk management methods, so that grocery businesses can have greater opportunities in facing intense competition.

Literature Review and Hypotheses Development

Micro, Small, and Medium Enterprises (MSMEs)

MSMEs are trading businesses managed by individuals that refer to productive economic enterprises with criteria that have been stipulated in the law(Rahayu Sri Utami, M.Agung Sasmita & Yusniar, 2022) . MSMEs contribute more than 60% to the national Gross Domestic Product (GDP) and absorb nearly 97% of the workforce (Coordinating Ministry for Economic Affairs of the Republic of Indonesia, 2025). This shows the importance of the MSME sector in the national economy. As a developing country, Indonesia has made SMEs the cornerstone of the community's economic sector, aiming to foster self-reliance in development, particularly in the economic sector (Sulaeman, 2023) .

Grocery Business

The basic foodstuff business is part of traditional retail that provides staple goods such as rice, sugar, cooking oil, eggs, and other daily necessities. According to the Indonesian Ministry of Trade, basic foodstuffs are essential goods that must be available and affordable to the public because they have a major impact on household economic stability (Indonesian Ministry of Trade, 2020). The grocery business is characterized by fast inventory turnover, small profit margins, and high dependence on suppliers and local market conditions. In addition, the grocery business also faces intense competition because it is easily accessible to anyone and does not require high technology in its operations (BPS, 2023). Thus, the grocery business is a vital sector in supporting the distribution of basic necessities and the Indonesian micro-economy.

Risk Management

Risk management is a process of identifying, assessing, and controlling threats that may occur in the future to a company (Santana1 et al., 2023) . Risks are dealt with in various ways, such as avoiding risks, reducing the possibility of risks and their impacts, transferring risks to other parties who bear them, accepting compensation for risks that must be taken, or exploiting new, more advantageous risks (Sudarmanto Eko, 2020) . Risks are expected to anticipate a rapidly changing environment, develop corporate governance, optimize strategic management, secure the organization's resources and assets, and reduce reactive decision-making by top management (Budi et al., 2014).

Vol. 10 No. 3 (2025): Edisi Desember 2025
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ISO 31000
ISO 31000, published by *The International Organization for Standardization*, is a guide for risk implementation that covers three elements, namely principles, frameworks, and processes. Lalonde and Boiral (2012) found that the systematic application of ISO 31000 principles can improve an organization's resilience to uncertainty. This is particularly important for MSMEs, which have limited resources to absorb losses due to risk. In its application, ISO 31000 can be applied in various types of public or private enterprises and is capable of establishing principles and stages for managing risk so that it can be used as a framework in risk management to implement more effective risk management (Bahrudin, 2016).

Method

This study uses a descriptive quantitative approach to analyze risks in the grocery business. The research population consists of MSME grocery business owners in the Tegal area, with a sample size of 50 respondents selected using purposive sampling. Data was collected through a questionnaire with a 1–5 Likert scale given to respondents directly involved in business operations. The analysis was conducted in accordance with ISO 31000 standards through three stages, namely risk identification to determine the types and frequencies of ten risks, risk analysis to assess the likelihood and magnitude of impact and calculate the risk level, risk evaluation to determine the category or risk rating of each risk, and risk management to assess the effectiveness of the controls implemented. All data were analyzed descriptively to describe the risk profile, risk level, and effectiveness of controls in business operations.

Result and Discussion

Risk Identification
Risk identification is the initial stage of the risk management process as outlined in ISO 31000, which emphasizes the importance of recognizing potential events that could affect organizational objectives (ISO, 2018). The risk identification stage aims to recognize various risks that could potentially affect grocery business activities. This approach is consistent with previous research that applied ISO 31000 in small and medium-sized enterprises to develop an initial risk profile (Lalonde & Boiral, 2012). The assessment was conducted using a 1–5 Likert scale, where a **score** range **of 1.00–2.49** was categorized as **low risk (rarely occurs), 2.50–3.49** as **medium risk (occurs occasionally)**, and **3.50–5.00** as **high risk (occurs frequently)**. These criteria were used to group ten types of risks based on respondents' perceptions of **the frequency of occurrence**, resulting in an initial risk profile that served as the basis for the subsequent risk analysis and evaluation stages.

Table 1. **Risk Identification**

Item	Risk Type	Event	Average Score	Category
A1	Operational Risk	Recording errors	3,40	Moderate
A2	Market Risk	Price fluctuationns	3,76	High
A3	Inventory Risk	Damaged or expired goods	3,42	Moderate
A4	Supplier Risk	Stock shortages	3,46	Moderate
A5	Financial Risk	Customer receivables	3,22	Moderate
A6	Demand Risk	Customer decline	3,76	High
A7	Competition Risk	Emergence of competitors	4,14	High
A8	Security Risk	Theft	3,28	Moderate
A9	Regulatory Risk	Changes in government regulations	3,62	High
A10	Disaster Risk	Disaster risk	2,42	Low

Source: Results of questionnaire data processing 2025

The results in Table 1 show that several operational risks, such as recording errors, damaged or expired products, stock shortages, and customer receivables, are categorized as moderate risks. These findings are in line with Santana et al., (2023) , which found that internal operational risks in MSMEs generally occur at a moderate level due to limited managerial skills and the absence of standard procedures. These risks, although not critical, can accumulate and disrupt business performance if not properly controlled.

Vol. 10 No. 3 (2025): Edisi Desember 2025
ISSN. 2540-816X E-ISSN: 2685-620

Conversely, external risks including price fluctuations, declining customer demand, the emergence of competitors, and changes in government regulations are considered high risks. According to Sudarmanto Eko, (2020), external risks tend to have higher uncertainty and are more difficult to control, especially for small businesses with limited resources. The high level of price fluctuation risk supports the findings of Zebua et al., (2025), which reported that staple food prices are highly sensitive to market conditions, seasonal factors, and government intervention. Similarly, the high risks associated with competition and customer decline are consistent with Putri Kholisoh et al., (2025), which highlights that MSMEs in the food retail sector face intense competition due to low barriers to entry and weak customer loyalty.

Thus, these results reflect the context-dependent nature of risk perception emphasized in ISO 31000. Overall, the identification stage revealed that external risks pose a greater threat than internal risks to grocery businesses in the Tegal region, indicating the need for prioritized risk management efforts.

Risk Analysis

The risk analysis stage is carried out to assess the level of risk for each identified risk. Within the framework of ISO 31000, risk analysis includes measuring likelihood (probability of occurrence) and impact (magnitude of impact) as the basis for determining the level of risk. The assessment is carried out using a 1–5 Likert scale, then calculated using the formula:

Risk Level = Likelihood × Impact

Risk Item The results of the calculation are grouped into three categories**, namely 1.00–4.99 = Low, 5.00–12.99 = Moderate,** and **13.00–25.00 = High.**

Table 2. Risk Analysis

Item	Risk	*Likelihood*	*Impact*	Risk Level (L x I)	Category
B1	Recording errors	3,16	3,16	9,99	Moderate
B2	Price fluctuationns	3,86	3,86	14,90	High
B3	Damaged or expired goods	3,10	3,10	9,61	Moderate
B4	Stock shortages	3,08	3,08	9,49	Moderate
B5	Customer receivables	3,92	3,92	15,37	High
B6	Customer decline	4,04	4,04	16,32	High
B7	Emergence of competitors	4,08	4,08	16,65	High
B8	Theft	3,90	3,90	15,21	High
B9	Changes in government regulations	3,80	3,80	14,44	High
B10	Disaster risk	3,56	3,56	12,67	Moderate

Source: Results of questionnaire data processing 2025

Based on the results of the Likelihood and Impact calculations, it appears that most risks fall into the high category, such as price fluctuations, customer receivables, customer decline, emergence of competitors, theft, and changes in government regulations. This indicates that these risks have a high probability and impact, so they need to be addressed with higher priority. Meanwhile, other risks such as recording errors, damaged or expired goods, stock shortages, and disaster risks fall into the moderate category with a moderate level of risk. These results support the research by Budi et al., (2014), which states that small-scale businesses tend to have high risks in operational and external activities due to the absence of a formal and documented risk management system. In addition, Feriyanly et al., (2025), also found that without structured risk analysis, MSMEs have the potential to experience repeated losses due to the same risks.

The risk analysis in this study shows that the ISO 31000 approach can help businesses measure risk levels more systematically so that priority risks can be identified immediately.

Risk Rating

Risk assessment is conducted to map the order of risks based on the Likelihood × Impact value. This step makes it easier for researchers and business actors to determine the risks that are the top priority to be addressed. This stage is very important in supporting efficient decision-making and resource allocation, especially for small businesses with limited capacity (ISO, 2018). The resulting risk rating provides an overview of the urgency level of each risk, so that the decision-making process can be carried out more effectively and in a targeted manner.

Vol. 10 No. 3 (2025): Edisi Desember 2025
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Table 3. Risk Evaluation

Rank	Risk	Risk Level (L x I)	Category
1	Emergence of competitors	16,65	High
2	Decline in customers	16,32	High
3	Customer receivables	15,37	High
4	Theft	15,21	High
5	Changes in government regulations	14,44	High
6	Price fluctuations	14,90	High
7	Disaster risk	12,67	Moderate
8	Recording errors	9,99	Moderate
9	Damaged or expired goods	9,61	Moderate
10	Stock shortages	9,49	Moderate

Source: Results of processing data from the 2025 questionnaire

The risk assessment results show that risks related to competition, customer decline, customer receivables, theft, changes in government regulations, and price fluctuations are in the high category, so they need more attention because they have the potential to cause significant disruption. Meanwhile, risks related to disasters, recording errors, damaged goods, and stock shortages are classified as moderate, requiring consistent monitoring and control. Even though the risk value is moderate, these risks can still disrupt business operations if not managed properly.

These findings are in line with the research Changyoni Putri et al., (2024), which shows that the application of risk management in MSMEs helps business actors in determining risk control priorities that have an impact on business sustainability. In addition, Amelia Rahmadani et al., (2025), confirms that probability and impact-based risk assessment through a risk matrix is effective in determining the focus of risk control in traditional retail businesses.

Thus, the risk evaluation in this study shows that ISO 31000 can be practically applied to grocery businesses to objectively establish risk priority scales.

Risk Management

The risk management stage aims to assess the level of effectiveness of controls that have been implemented by business owners for each risk, to reduce the likelihood and impact of risks through appropriate control measures, as recommended in ISO 31000. The assessment is obtained from the average score on a questionnaire with a Likert scale of 1–5, which is then categorized into the following effectiveness standards:

- **1.00–1.80 = Very low**
- **1.81–2.60 = Low**
- **2.61–3.40 = Moderate**
- **3.41–4.20 = High**
- **4.21–5.00 = Very high**

Table 4. Risk Management

Item	Risk	Control Score	Effectiveness
C1	Recording errors	3,38	Moderate
C2	Price fluctuationns	4,04	High
C3	Damaged or expired goods	3,68	High
C4	Stock shortages	3,80	High
C5	Customer receivables	3,00	Moderate
C6	Customer decline	3,88	High
C7	Emergence of competitors	3,88	High
C8	Theft	3,80	High
C9	Changes in government regulations	4,00	High
C10	Disaster risk	3,40	Moderate

Source: Results of questionnaire data processing 2025

Vol. 10 No. 3 (2025): Edisi Desember 2025
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The results in the table show that most control scores indicate high risk, such as price fluctuations, damaged or expired goods, stock shortages, customer decline, emergence of competitors, theft, and changes in government regulations, have been managed well, indicating that the control measures taken are effective. However, there are several other risks, such as recording errors, customer receivables, and disaster risks, which are still in the moderate effectiveness category, so they need to be further addressed to prevent these risks from increasing and to keep them under control in the operations of this business.

Based on the results of risk identification, analysis, and evaluation, this study shows that risk control needs to be focused on high-category risks through appropriate mitigation strategies. Risk control measures that can be implemented include improving business security, diversifying suppliers, adjusting pricing strategies, and regularly monitoring government policies. These results are in line with the research by Santana et al., (2023), which emphasizes the importance of marketing innovation, searching for alternative suppliers, and developing operational SOPs as forms of SME risk mitigation. In addition, Utamajaya et al., (2021), states that continuous risk control can increase the resilience of SMEs to external shocks.

Thus, the results of this study confirm that the implementation of ISO 31000 is not only conceptual but also provides practical guidance for grocery businesses in managing risk in a sustainable manner.

Conclusion and future direction

Based on the results of identification, analysis, evaluation, and management of ten risks in the grocery business, six major risks, namely the emergence of competitors, decline in customers, customer receivables, theft, changes in government regulations, and price fluctuations, are classified as high risks and are a top priority. Meanwhile, the other four risks, namely recording errors, damaged or expired goods, stock shortages, and disaster risks, are classified as medium risks and still need to be monitored consistently. Overall, risk management has been effective, although some risks at the medium level still require stronger controls to ensure smooth operations. Therefore, businesses are advised to prioritize high-risk controls, strengthen moderate-risk controls, conduct periodic evaluations, and document risk management as a basis for decision-making. In addition, future researchers can expand the risk variables, use additional measurement methods, increase the sample size or research locations, and examine the long-term effectiveness of risk controls after the implementation of mitigation strategies.

Implication

The research findings showing that most risks fall into the high category have important implications in terms of both theory and management. From a theoretical perspective, these results reinforce the idea that small and medium-sized enterprises are highly vulnerable to external changes such as competition, regulatory changes, and consumer behavior, and confirm that the use of the ISO 31000 framework is highly relevant for structured risk analysis. From a management perspective, these findings require business managers to focus on reducing high-category risks by strengthening security, improving marketing and service strategies, and regularly monitoring regulations, while continuing to manage medium-category risks by improving work procedures and inventory management. Overall, these implications form an important basis for improving business resilience and more effective decision making.

Conflict of Interest

This research on grocery businesses was conducted independently without any external involvement, whether financial, commercial, or institutional affiliation, so there were no conflicts of interest that could influence the research process or results.

Vol. 10 No. 3 (2025): Edisi Desember 2025
ISSN. 2540-816X E-ISSN: 2685-620

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