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Risk Management Strategies: Avoidance, Reduction, Sharing, and Retention - Systematic Literature Review

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ABSTRACT

The increasingly complex, dynamic, and uncertain organizational environment demands that organizations develop risk management strategies that are not only oriented towards reducing losses but also support resilience, sustainability, and value creation. The four main risk management strategies—avoidance, reduction, sharing/transfer, and retention—have different characteristics and consequences and can be used individually or in combination according to the risk characteristics and capacity of the organization. This study aims to map the development of research on these four strategies, identify the context and factors that influence their selection, analyze the relationships and combinations between strategies, and identify remaining research gaps. The study used the Systematic Literature Review (SLR) method with a literature search and selection process that refers to the PRISMA 2020 principles. The literature was searched through several academic databases using a combination of keywords related to risk management strategies, enterprise risk management, and the organizational risk context. Of the 256 identified publications, after going through the screening and eligibility assessment stages, 15 publications were obtained that met the criteria for qualitative analysis. The synthesis results show that avoidance is primarily relevant for extreme risks and risks beyond tolerance limits, reduction is the most widely implemented strategy through strengthening internal controls and capacity, sharing/transfer is increasingly developed through collaboration, insurance, reinsurance, and alternative risk transfer mechanisms, while retention is developing as a strategic decision to bear risks that are still within the organization's capacity. The findings also show that these strategies are not mutually exclusive, but form a portfolio of risk responses influenced by risk characteristics, organizational capacity, information quality, technology, governance, risk culture, and the external environment. The research identifies the need for an integrative conceptual model, longitudinal and mixed methods studies, broadening the cross-

sector context, and developing risk effectiveness measurements that include financial, resilience, sustainability, and social dimensions. This research contributes by strengthening the perspective that modern risk management is an integrative, adaptive, and contextual system in supporting organizational sustainability.

INTRODUCTION

Risk is an integral part of organizational activities and managerial decision-making processes. In an increasingly dynamic business environment, organizations are not only faced with conventional risks, such as operational, financial, and compliance risks, but also increasingly complex risks resulting from globalization, digital transformation, technological change, economic uncertainty, market dynamics, regulatory changes, and political and social upheaval. The interdependence between organizational actors and activities also causes one risk to develop into another or have a chain effect that transcends unit, organizational, or even sector boundaries. This condition means that risk management can no longer be viewed solely as a loss control activity, but as an integral part of governance, strategic decision-making, value creation, and organizational sustainability.

From a modern management perspective, the existence of risk is not always synonymous with threat. Uncertainty can result in negative consequences or open up opportunities for organizations to create value. Therefore, organizations require a decision-making mechanism that allows risks to be understood, assessed, prioritized, and responded to proportionately according to organizational objectives. Risk management is essentially a systematic process for identifying, analyzing, evaluating, addressing, monitoring, and communicating risks in order to achieve organizational objectives. Therefore, the quality of risk management is determined not only by an organization's ability to identify risks but also by its ability to select risk responses appropriate to the level of exposure, organizational capacity, control costs, risk tolerance level, and the characteristics of the external environment.

One fundamental aspect of this process is selecting a risk response strategy. The risk management literature broadly discusses a number of response alternatives that can essentially be categorized into four main strategies: avoidance, reduction, sharing or transfer, and retention. These four strategies represent an organization's choices in determining how to manage risks after they have been identified, analyzed, and evaluated. Risk avoidance refers to the decision to avoid activities, conditions, or decisions that pose risks if the level of risk is deemed unacceptable or disproportionate to the expected benefits. This strategy can be implemented, for example, by terminating high-risk activities, not entering certain markets, or rejecting projects with a level of uncertainty beyond the organization's capacity.

Unlike avoidance, risk reduction occurs when an organization maintains risky activities but attempts to reduce the probability of the risk occurring and/or mitigate its consequences. Reduction can be achieved through the implementation of internal controls, improving the quality of human resources, standardizing procedures, diversification, utilizing technology, strengthening information systems, improving the quality of supervision, and implementing other prevention and mitigation mechanisms. This strategy becomes important when risk is impossible or uneconomical to completely avoid, but the level of exposure can still be controlled through various managerial and operational instruments.

Meanwhile, risk sharing or risk transfer is a strategy that allows some of the consequences of a risk to be transferred or shared with another party through contractual mechanisms, insurance, partnerships, outsourcing, hedging, or other forms of arrangement. This strategy does not necessarily eliminate the source of risk, but it can alter the distribution of risk consequences among parties with varying risk-bearing capacities. The effectiveness of a transfer strategy depends heavily on the contract design, the capability and credibility of the risk recipient, the cost of the transfer, and the extent to which the risk can actually be transferred. Therefore, risk transfer needs to be understood critically because transferring financial consequences does not necessarily mean that an organization is free from all dimensions of risk, particularly reputational, compliance, operational, and strategic risks.

Risk retention is an organization's conscious decision to accept and bear risk, either in whole or in part, for its consequences. Retention can occur when the risk is at a tolerable level, when the costs of mitigation or transfer are higher than the potential loss, or when the risk is an inherent consequence of the organization's activities that is difficult to eliminate. In this context, retention does not mean the organization ignores the risk; rather, it is a managerial decision based on considerations of risk appetite, risk tolerance, financial capacity, control costs, and the expected benefits of the activity. Therefore, retention needs to be distinguished from a situation where the organization is unaware of or unable to control its risks.

In practice, these four strategies are not mutually exclusive. Organizations can employ more than one strategy simultaneously or in stages, depending on the characteristics and complexity of the risks they face. For example, a manufacturing company can reduce operational risk through the implementation of quality control systems and preventive maintenance, while simultaneously transferring some financial risk through insurance. To a certain extent, the company can also avoid activities that carry risks beyond its capacity and retain residual risk within tolerable limits. This pattern demonstrates that risk response is essentially a portfolio of decisions, not a single choice. This complexity increases when an organization faces interconnected risks and when decisions regarding one type of risk can affect exposure to other risks.

In the public sector, similar patterns can be found, although the characteristics of objectives and accountability differ from those of private organizations. The government can retain certain risks inherent in the implementation of public functions, while simultaneously mitigating them through strengthening control and governance, transferring them through cooperation with third parties, or avoiding activities that conflict with regulations and the public interest. This shows that the choice of risk response strategy is strongly influenced by the organizational context, risk characteristics, regulations, resources, stakeholder interests, and potential consequences. In other words, there is no single risk response strategy that is universally most effective for all types of organizations and all conditions.

Despite the extensive development of risk management research, the literature on how and why organizations choose a combination of avoidance, reduction, sharing/transfer, and retention remains scattered across various disciplines, sectors, and research contexts. Some studies focus on a single strategy or type of risk, while others examine risk response strategies within specific industry or organizational contexts. This fragmentation has left knowledge about general patterns of strategy selection, the factors influencing them, the conditions determining their effectiveness, and the relationships among the four strategies incompletely integrated. Furthermore, differences

in context between the public and private sectors, large and small organizations, and different industrial environments can result in different risk response mechanisms. This situation creates the need for a systematic synthesis of the literature to map the development of knowledge on risk response strategies more comprehensively.

This gap becomes increasingly relevant in organizational environments facing multidimensional and interconnected risks. An approach that only considers avoidance, reduction, transfer, or retention in isolation potentially overlooks the relationships and trade-offs between these strategies. For example, a decision to mitigate a risk can increase operational costs, while a decision to transfer the risk can create dependence on external parties. Similarly, a decision to avoid an activity can reduce risk exposure but also eliminate business opportunities. Conversely, a decision to retain a risk can provide cost efficiencies if done within appropriate tolerance limits, but can increase losses if the organization's risk-absorbing capacity is inadequate. Therefore, selecting a risk response strategy needs to be understood as a decision-making process that considers the relationship between risks, costs, opportunities, organizational capacity, and strategic objectives.

In this context, a Systematic Literature Review (SLR) is a relevant approach for integrating knowledge that has developed in a fragmented manner. Unlike narrative literature reviews, which tend to rely on researcher selection and interpretation, an SLR allows for systematic and transparent identification, selection, quality evaluation, extraction, and synthesis of evidence based on predetermined protocols. This approach allows researchers not only to summarize the results of previous studies but also to identify patterns of findings, the development of themes, research contexts, methodological approaches, determining factors, relationships between concepts, and inconsistencies in research findings. The use of the PRISMA framework in the reporting process can also increase transparency in the literature selection process and strengthen the traceability of the evidence used in the synthesis.

Based on these conditions, this study conducted a systematic literature review of risk management strategies that include avoidance, reduction, sharing/transfer, and retention. This study aimed to map research developments, identify the context of strategy implementation, analyze factors influencing strategy selection and effectiveness, and explore how the four strategies are used individually and in combination. With this scope, the study not only seeks to answer questions about which strategies organizations use, but also why a strategy is chosen, under what conditions it is effective, and how a combination of strategies can form a more adaptive risk response.

More specifically, this research is aimed at answering five research questions: (1) how is the development of research on risk management strategies of avoidance, reduction, sharing/transfer, and retention in academic literature; (2) what are the patterns, contexts, and approaches used in implementing each strategy in various sectors and types of organizations; (3) what factors influence the selection and effectiveness of implementing these strategies; (4) how are the relationships and combinations between avoidance, reduction, sharing/transfer, and retention formed in risk management practices; and (5) what research gaps are still open and can become future research agendas.

Based on these questions, this study aims to map the development of academic literature on avoidance, reduction, sharing/transfer, and retention strategies; identify and synthesize previous research findings regarding their application in various organizational contexts; identify factors that influence strategy selection, implementation, and effectiveness; and develop a conceptual

synthesis framework that explains the relationships and possible combinations between the four strategies. Ultimately, this study also aims to identify research gaps that can be used as a basis for developing future empirical and conceptual research agendas.

Theoretically, this research is expected to contribute by integrating various perspectives on risk response that have been studied relatively separately. This synthesis is expected to clarify the position of avoidance, reduction, sharing/transfer, and retention within the overall risk management process and explain the conditions that encourage the use of certain strategies. Practically, the research results are expected to provide a basis for managers, decision-makers, and organizational stakeholders in selecting a more proportional risk response by considering the level of risk, organizational capacity, control costs, risk tolerance, and strategic objectives. Thus, this research is expected to broaden the understanding that the effectiveness of risk management is not solely determined by an organization's ability to reduce risk, but also by its ability to select, combine, and adapt risk response strategies to the dynamics of the organization's environment.

The scope of the study focuses on scientific literature that explicitly discusses risk response or management strategies in the context of organizations, both in the public and private sectors. The main objectives of the study include four strategies: avoidance, reduction, sharing/transfer, and retention. The literature reviewed includes research in the corporate, financial, manufacturing, public, educational, and other organizational contexts as long as they are relevant to organizational risk management. The study focuses on scientific publications within the last ten years to ensure the resulting synthesis represents a relatively recent development in knowledge. The SLR process includes literature identification, study screening and selection, feasibility and quality assessment, data extraction, and synthesis of findings, adhering to transparent and systematic reporting principles.

With this scope, this research is not intended simply to compare cases or summarize the results of previous research, but rather to build a synthesis of knowledge regarding the logic of selecting and configuring risk response strategies. This focus is crucial because modern organizations increasingly face dynamic, multidimensional, and interconnected risks. Therefore, understanding when risks should be avoided, when they need to be mitigated, when they can be shared or transferred, and when they can be accepted is a crucial part of strategic decision-making. The synthesis produced through the SLR is expected to strengthen the theoretical foundation of risk management while providing a clearer direction for the development of adaptive, integrated, and sustainability-oriented risk management research and practices.

RESEARCH METHODOLOGY

Research Design

This study uses a Systematic Literature Review (SLR) approach to identify, evaluate, classify, and synthesize the results of previous research on risk management strategies, specifically avoidance, reduction, sharing/transfer, and retention. The selection of the SLR approach is based on the characteristics of the study, which seeks to integrate scientific evidence spread across various sectors, disciplines, organizational contexts, and research approaches. SLR allows the process of searching and selecting literature to be carried out systematically, transparently, documented, and traceable so that the results of the synthesis are not only a summary of previous research, but also able to show patterns of knowledge development and research gaps.

The research design was based on the principles of systematic review implementation, integrating the stages of literature identification, screening, eligibility assessment, data extraction, and qualitative synthesis. Reporting of the literature selection process refers to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) 2020 framework to enhance transparency in explaining literature sources, the screening process, reasons for exclusion, and the number of publications ultimately used in the synthesis.

The focus of the study is derived directly from the research questions in the introduction, namely to map the development of research on avoidance, reduction, sharing/transfer, and retention; identify the context of their application; identify factors that influence the selection and effectiveness of strategies; analyze the relationship and combination of strategies; and identify research gaps that can become an agenda for further research.

Literature Search Strategy

The literature search strategy was designed to obtain publications relevant to the concept of risk response strategies in an organizational context. The search was conducted in several academic databases covering management, business, organizational, technology, and risk management literature. The primary databases used were Google Scholar, Scopus, and IEEE Xplore, while the search could be expanded through ScienceDirect and Emerald Insight to increase the coverage of relevant literature. In the actual identification process used for the final selection, the search included seven database sources: Google Scholar, Scopus, SpringerLink, MDPI, Hindawi, Frontiers, and Taylor & Francis Online.

Keywords were developed based on the main research concepts and combined using the Boolean operators AND, OR, and NOT. The search strategy aimed to capture a wide range of terms used in the literature to describe risk response strategies. The primary search strings used were:

("risk management strategy" OR "risk management approach") AND ("avoidance" OR "reduction" OR "mitigation" OR "sharing" OR "transfer" OR "retention") AND ("organizational risk" OR "enterprise risk management" OR "corporate risk" OR "project risk") AND ("case study" OR "empirical study" OR "implementation")

The use of the terms "mitigation" and "reduction" was done to anticipate terminological variations in the academic literature, as some studies use the term "risk mitigation" to describe actions aimed at reducing both the probability and impact of risks. Similarly, the terms "sharing" and "transfer" were used simultaneously to capture studies that used different terminology to describe the mechanisms for sharing or transferring risk consequences. Search strings were applied to article titles, abstracts, and keywords according to the capabilities of each database. This strategy was intended to increase search sensitivity without losing relevance to the research focus.

The publication period used in this study is 2015–2025. This period was chosen to obtain a synthesis that represents contemporary research developments over a decade. However, older articles can be used as conceptual references when necessary to explain the theoretical foundation or early development of risk management strategy concepts, but are not included as primary studies in the SLR sample if they do not meet the research period limits.

Inclusion and Exclusion Criteria

Inclusion and exclusion criteria were established prior to the selection process to maintain consistency, objectivity, and traceability in determining which studies to analyze. Inclusion criteria were used to ensure that selected articles were directly relevant to the objectives of the SLR, while

exclusion criteria were used to eliminate publications that did not meet substantive or methodological requirements.

The research inclusion criteria include:

1. Research articles published in scientific journals and have gone through a peer review process, both national and international journals.
2. Articles that discuss risk management or response strategies with a focus on at least one of four main strategies, namely avoidance, reduction, sharing/transfer, or retention.
3. Articles are available in full text form, so that the objectives, methodology, context, and results of the research can be analyzed thoroughly.
4. Articles are written in Indonesian or English.
5. Articles published in the period 2015–2025.
6. The article has an organizational or managerial context relevant to the research focus.

The inclusion criteria maintain the principle that articles must be substantive and relevant to risk management strategies, rather than simply using the term "risk" in general. The original research criteria also required peer-reviewed articles, relevance to the four main strategies, full-text availability, use of Indonesian or English, and a period of 2015–2025.

Meanwhile, the exclusion criteria include:

1. Non-scholarly publications, such as opinion pieces, editorials, news, popular reports, or industry reports that have not undergone a peer review process.
2. Articles that only discuss risks in general without discussing risk management or response strategies.
3. The study is highly technical and lacks adequate relevance to the context of management, organization, or decision-making.
4. Articles that only provide an abstract and are not accessible in full text form.
5. Duplicate publications found in more than one database.
6. Articles that do not provide sufficient information regarding the context, methods, or research findings, making it impossible to perform adequate data extraction.

These exclusion criteria are in line with the initial procedures used in the study, namely excluding non-peer-reviewed articles, articles that only discuss risks in general, studies that are too technical without managerial relevance, publications without full text, and duplicate articles.

Literature Selection Procedure

Literature selection was conducted in stages to ensure that the articles included in the final synthesis truly align with the research focus. The selection process adhered to the PRISMA 2020 principles, which differentiate between identification, screening, eligibility, and inclusion. The entire selection process was documented to ensure traceability between the articles found in the initial stages and those ultimately used in the synthesis.

In the identification stage, 256 articles were obtained from seven database sources: Google Scholar, Scopus, SpringerLink, MDPI, Hindawi, Frontiers, and Taylor & Francis Online. The search was conducted using a combination of keywords related to risk management strategy, avoidance, reduction, sharing, transfer, retention, and enterprise risk management.

The next stage was screening. Of the 256 identified publications, 180 articles were excluded because they were duplicate publications, had not undergone peer review, or were not directly

related to the focus of the risk management strategy. Thus, 76 articles proceeded to a more in-depth examination stage.

The third stage was the eligibility assessment, which examined 76 articles based on their abstracts and full texts. The evaluation was conducted by considering the suitability of the research objectives, organizational context, the risk strategy being studied, the methodological approach, and the availability of information necessary for data extraction. The evaluation results indicated that 47 articles were excluded because they discussed risk too generally, used a technical approach lacking sufficient managerial relevance, or were not available in full text. Thus, 29 articles were deemed to meet the initial requirements for thematic and methodological eligibility.

A final eligibility assessment was then conducted on the 29 articles. The final evaluation included a re-examination of the completeness of the research information, the suitability of the variables or constructs analyzed, the organizational context, the risk management strategies discussed, and their alignment with the objectives of the SLR. Based on this evaluation, 15 publications met all criteria and were used as primary studies in the synthesis. These publications, consisting of 14 scientific articles and one literature review, were selected from the 2015–2025 period and covered a variety of sectors, geographic regions, and methodological approaches.

Thus, the selection process resulted in a pipeline of 256 publications at the identification stage, 76 publications after screening, 29 publications at the eligibility stage, and 15 publications at the inclusion stage. The selection pipeline is presented in the PRISMA 2020 diagram in Table 1.

Table 1 Summary of the Literature Selection Stages (PRISMA Model)

Selection Steps	Process Description	Number of Articles	Status
Identification (Identification)	Initial search using keywords in several major academic databases.	256	Found
Screening (Screening)	Review of titles and abstracts to assess topic relevance.	76	Passed initial screening
Eligibility Check (Eligibility)	<i>Full-text review</i> to assess methodological quality and topic relevance.	29	Eligible for analysis
Final Selection (Inclusion)	Selection of the most relevant and high-quality articles.	15	Used in the main analysis

This multi-layered selection process was used to maintain consistency and transparency in determining which studies were analyzed. The use of pre-established criteria also reduced the likelihood of including articles that merely related terminologically to risk but did not provide relevant evidence regarding risk response strategies. Thus, the final 15 publications are expected

to provide an adequate basis for developing a synthesis on avoidance, reduction, sharing/transfer, and retention.

Data Extraction

After the selection process was complete, data extraction was performed to organize the key information from each selected study. Data extraction was performed using a data extraction sheet so that information from all articles could be systematically compared. The variables or information extracted included:

1. identity of the article and author;
2. year of publication;
3. research purposes;
4. country or research region;
5. sector or organizational context;
6. the type of risk being assessed;
7. risk response strategies used;
8. research approach and design;
9. data collection and analysis methods;
10. main findings;
11. factors influencing strategy selection;
12. effectiveness or consequences of implementing the strategy; and
13. research implications or recommendations.

This extraction structure allows researchers not only to determine which strategies are discussed in each article but also to identify the context in which the strategies are selected, the driving factors, the implementation mechanisms, and the consequences of their adoption. This is important because the goal of SLR is not simply to count the frequency of a strategy's occurrence, but to understand the patterns of relationships between risk characteristics, organizational characteristics, and risk response choices.

Categorization and Classification of Literature

The extracted articles were then categorized based on the four main strategies that were the focus of the research. Avoidance is categorized as a strategy aimed at eliminating exposure by stopping or avoiding activities that generate risk. Reduction is categorized as a strategy aimed at reducing the probability and/or impact of risk through control and mitigation measures. Sharing/transfer includes mechanisms for dividing or transferring the consequences of risk to another party through insurance, contracts, partnerships, outsourcing, or similar mechanisms. Retention is categorized as a conscious decision to retain and bear risk based on considerations of risk tolerance, organizational capacity, control costs, and expected benefits. This classification is consistent with the categorization structure in the initial research.

In addition to classification based on strategy, studies are also categorized based on:

- sector or type of organization;
- type of risk;
- geographic area;
- research approach;
- analysis method;
- level of strategy implementation;

- factors that influence strategy selection; and
- results or effectiveness of strategy implementation.

This multidimensional classification allows for comparisons across contexts. For example, a strategy may be dominant in one sector but less widely used in another due to differences in risk characteristics, regulations, resources, or organizational capacity.

Data Analysis and Synthesis Techniques

The study used qualitative synthesis as the primary data analysis technique. This approach was chosen because the literature that met the final criteria varied in research objectives, organizational contexts, research designs, risk types, and analysis methods, making it difficult to compare all research results statistically. The initial research sources also determined qualitative synthesis because the majority of the literature found was conceptual or case study in nature.

The analysis was conducted through three main stages. First, descriptive mapping was conducted to map the distribution of research by publication year, sector, region, risk strategy, and methodological approach. Second, thematic analysis was conducted to identify key themes emerging from previous research, including factors driving strategy selection, implementation mechanisms, effectiveness, limitations, and contextual conditions. Third, cross-study synthesis was conducted by comparing findings across studies to identify similarities, differences, relationships, and inconsistencies in the results.

The subsequent synthesis focused on four analytical questions. First, which strategies are most widely studied and in what contexts are they used? Second, what factors drive organizations to choose avoidance, reduction, sharing/transfer, or retention? Third, how are combinations of strategies used to address complex risks? Fourth, what conditions make a strategy more or less effective.

This approach allows the SLR results to move beyond mere literature description to conceptual synthesis. Thus, the final research results are expected to map the relationships between risk characteristics, organizational and environmental factors, response strategy options, and their consequences for risk management effectiveness. This synthetic approach was also used in the initial manuscript to identify patterns, trends, relationships between strategies, and research gaps.

Assessment of Literature Quality and Reliability

To maintain the quality of the evidence used in the synthesis, articles that have passed the screening and eligibility stages are evaluated based on methodological and substantive suitability. The assessment includes clarity of the research objectives, the appropriateness of the research design to the objectives, clarity of the research context or object, transparency of methods, adequacy of presentation of results, and the relevance of the findings to risk management strategies.

Articles that do not provide adequate methodological or substantive information are not prioritized in the final synthesis. This procedure is intended to reduce the risk that the SLR conclusions will be unduly influenced by studies of low methodological quality. Quality evaluation is also essential for ensuring the validity, reliability, and traceability of the resulting synthesis.

SLR Process Reliability

Research reliability was maintained through the use of a documented search strategy, explicitly defined inclusion and exclusion criteria, a multi-step selection process, and the use of a structured data extraction sheet. Each stage was designed to be traceable from the articles found during the identification phase to the publications used in the final synthesis.

Furthermore, the use of PRISMA 2020 provides a reporting framework that allows readers to understand the number of articles found, the number of articles excluded at each stage, and the number of studies ultimately analyzed. Thus, the research methodology is not only oriented towards obtaining a large number of articles but also ensures that the process produces a relevant, transparent, systematic, and academically accountable literature sample.

RESULTS AND DISCUSSION

Characteristics and Mapping of the Analyzed Studies

Based on the Systematic Literature Review (SLR) process, 15 publications were found to meet the inclusion criteria and were used as the basis for the synthesis. These studies were published between 2015 and 2025 and represent a variety of organizational contexts, industry sectors, geographic regions, and methodological approaches. The literature analyzed encompasses Enterprise Risk Management (ERM), supply chains, the financial and insurance sector, MSMEs, high-risk industries, sustainability, and digital transformation. This diversity demonstrates that avoidance, reduction, sharing/transfer, and retention strategies are not concepts confined to a single discipline but have evolved into a diverse set of organizational risk management approaches.

The synthesis of these findings demonstrates that research on risk management strategies has undergone a fundamental shift in orientation. While earlier literature tended to view risk management as a mechanism to reduce the likelihood of loss, more recent research has positioned it as part of the strategic decision-making process, value creation, resilience, and organizational sustainability. Thus, risk is no longer understood solely as a threat to be eliminated, but as uncertainty that needs to be managed through a combination of responses tailored to the risk's characteristics and organizational capacity.

Cross-study findings also indicate that no single strategy is universally superior. The choice of strategy is influenced by the level and nature of risk, financial and organizational capacity, risk tolerance, information quality, regulations, technology, organizational culture, and the organization's relationships with external parties. In other words, the effectiveness of a strategy is contingent, depending on the fit between the strategy's characteristics and the risk and organizational context.

This shift is evident in the research of Zhuang et al. (2023), who developed an early warning model based on artificial intelligence and legal system integration to detect potential regional financial instability before it develops into a systemic crisis. These findings demonstrate that modern risk management increasingly emphasizes the ability to detect and respond to risks before their impact materializes, so that avoidance and reduction strategies are no longer solely reactive. Predictive technology shifts the role of information in risk decision-making from a mere reporting tool to an anticipatory instrument.

At the organizational level, Leng et al. (2022) showed that the maturity level of Enterprise Risk Management is influenced by resource capacity and decision-making culture. Organizations with limited resources tend to implement reduction and retention selectively, while more mature organizations have a greater capacity to develop sharing mechanisms through external relationships. This finding demonstrates that risk strategy cannot be separated from risk capacity, as organizations with different resources face different limits in mitigating and transferring risk.

Sari et al. (2025) expanded this perspective through the dimensions of governance and institutional ownership. The results showed that ownership structure can influence the effectiveness of ERM on profitability and firm value. This finding indicates that risk response is not only a technical management decision but is also influenced by governance mechanisms and accountability demands from stakeholders. Therefore, the choice of sharing and retention strategies needs to be understood in relation to the oversight structure, incentives, and interests of the organization's owners.

Anton and Nucu (2020) reinforced these findings through a study of ERM developments. They demonstrated that modern ERM is moving from an individual-risk-oriented approach to cross-functional risk integration and its linkage to organizational strategy. From this perspective, reduction and retention are used not solely to control losses but also to maintain operational stability and support long-term value creation. These findings are significant because they demonstrate that risk response strategies acquire broader meaning when placed within an ERM framework.

In the supply chain context, Roshani et al. (2024) demonstrated that the combination of risk reduction and sharing plays a crucial role in building supply chain resilience. Supplier diversification, flexible contracts, and risk-sharing mechanisms enable organizations not only to reduce the likelihood of disruptions but also to improve their ability to recover after they occur. Santos et al. (2025) expanded this perspective by incorporating sustainability and digitalization into supplier risk management. These findings demonstrate that sharing evolves from simply a mechanism for shifting financial consequences to a collaborative tool for enhancing the resilience of organizational networks.

The role of technology is further highlighted in research by Liu, Li, and Qi (2019), which shows that blockchain technology can reduce information asymmetry, increase transparency, and lower the potential for failure in relationships between supply chain actors. This technology primarily enhances reduction through improved information quality, but can also support avoidance when more accurate information allows organizations to avoid relationships or transactions with unacceptable levels of risk. Hafez et al. (2024) further demonstrate that digitalization and data analytics strengthen the supply chain's ability to withstand disruptions while improving coordination between parties.

In the financial and insurance sector, Bei et al. (2023) demonstrated the importance of balancing risk sharing through reinsurance with risk retention. These findings suggest that excessive risk transfer is also not an optimal solution, as organizations still require a certain level of retention to maintain efficiency and oversight incentives. Zhang and Zhang (2024) added that retention decisions are influenced by information asymmetry and the quality of transparency. Meanwhile, Hibbeln and Osterkamp (2025) demonstrated that risk retention mechanisms in securitization, or the concept of skin in the game, can increase investor confidence and market stability.

These findings reveal an important pattern: retention is no longer appropriately understood as a passive decision to "accept" risk. Retention can be a strategic decision when an organization has the capacity to bear losses and obtain certain benefits by not transferring the risk. Therefore, retention must be distinguished from unmanaged risk. Retention is a deliberate decision and should be supported by an assessment of risk capacity, tolerance, and consequences.

In the social and environmental dimension, Semenova et al. (2021) showed that large companies in the Nordic region adapted their management control systems to manage social and

environmental risks through reduction and sharing mechanisms. Strengthened reporting and stakeholder engagement indicate that risk management is evolving towards an approach that considers social and environmental consequences. This broadens the perspective of risk management from financial protection to organizational sustainability.

Nordin et al. (2021) provide a different perspective by emphasizing human factors and communication in high-risk organizations. These findings suggest that a climate of open communication and effective information management can strengthen an organization's ability to prevent incidents. Thus, avoidance is determined not only by technology or formal procedures, but also by the organization's ability to build a culture that allows for the open communication of risk information.

In the MSME sector, Mumassabba et al. (2025) showed that a combination of avoidance and reduction is a common response to market uncertainty, while capital constraints can encourage organizations to consciously maintain small risks. These findings suggest that risk strategies must be understood based on organizational capacity. Strategies that may be optimal for large companies may not be applicable to MSMEs due to differences in mitigation costs, access to insurance, technology, and human resources.

Overall, the mapping of 15 studies shows that avoidance, reduction, sharing/transfer, and retention represent a spectrum of complementary responses, not stand-alone categories. Reduction strategies appear to be the most widely used, while sharing is increasingly prevalent in environments with interdependence between organizations. Avoidance is particularly important for risks with extreme consequences or unacceptable risks, while retention becomes relevant when an organization has the capacity to consciously absorb the consequences of the risk.

Synthesis Findings Based on Four Risk Management Strategies

Avoidance: From Passive Avoidance to Proactive Anticipation

The SLR results indicate that avoidance remains an important strategy when risks have very high consequences, are beyond tolerance levels, or are related to the safety and sustainability of the organization. However, the meaning of avoidance in contemporary literature has evolved. Avoidance no longer simply means stopping risky activities, but is increasingly associated with an organization's ability to identify risks early so that avoidance decisions can be made before the risks become material.

Zhuang et al. (2023) illustrate this shift through the use of an artificial intelligence-based early warning model. Early warning systems enable organizations to identify indications of instability before they develop into a crisis. Thus, avoidance becomes part of the predictive process, not just an action after the risk is known. These findings demonstrate that the quality of avoidance depends on the quality of information and the organization's ability to translate that information into decisions.

Nordin et al. (2021) demonstrated another dimension in which avoidance is influenced by organizational communication. In high-risk environments, formal control systems will be ineffective if information about potential hazards cannot flow openly between organizational levels. This means that risk avoidance is a result of the interaction between technical systems and human factors.

Liu et al. (2019) also demonstrated that increased transparency through blockchain can support risk aversion in inter-actor relationships. When information about transactions and supply

chains becomes more transparent, organizations have a stronger basis for avoiding high-risk partners or transactions.

However, avoidance has its limitations. Overly aggressive avoidance can reduce opportunities for innovation, market expansion, and value creation. Therefore, avoidance should be applied primarily to risks that fall outside one's risk appetite or have unacceptable consequences. In this context, avoidance is a selective strategy, not a universal one.

Reduction: The Most Universal Strategy but Dependent on Organizational Capacity

Reduction is the most widely used strategy in the analyzed literature. This strategy is used in various contexts, from ERM, supply chain, finance, MSMEs, to social and environmental risk management. The predominance of reduction indicates that most organizations cannot avoid all risks inherent in their activities. Therefore, organizations tend to maintain value-generating activities while reducing the likelihood or impact of these risks.

In the context of ERM, Anton and Nucu (2020) and Leng et al. (2022) demonstrate that reduction can be integrated into the management process by strengthening controls, cross-functional coordination, and increasing organizational capacity. Thus, reduction is not limited to operational actions but becomes part of the management system.

In the supply chain, Roshani et al. (2024), Hafez et al. (2024), and Santos et al. (2025) show that risk reduction can be achieved through supplier diversification, digitalization, increased coordination, and the development of resilient networks. These findings are important because they demonstrate that risk reduction in complex systems cannot always be achieved by a single organization. Reduction can require cross-organizational collaboration.

However, risk reduction has limitations in terms of resource requirements. Mumassabba et al. (2025) showed that MSMEs face capital constraints in implementing comprehensive mitigation mechanisms. Therefore, the effectiveness of risk reduction is influenced by risk management capability. Organizations with greater resources, technology, and competencies have more options for reducing risk.

These results indicate that reduction can be positioned as a core strategy in risk management, but its effectiveness depends on the organization's capacity to finance, implement, and monitor control mechanisms.

Sharing/Transfer: Shifting from Risk Transfer to Risk Collaboration

The literature shows that sharing/transfer has experienced the most interesting developments as organizational interdependence increases. Traditionally, sharing has often been associated with insurance or the transfer of losses through contracts. However, contemporary research has expanded its meaning to include the division of responsibility and risk management capacity among various actors.

Bei et al. (2023) demonstrated that reinsurance is a mechanism for sharing risk while optimizing an insurance company's portfolio. Cremer (2024) demonstrated the development of alternative risk transfers to address unpredictable cyber risks. Meanwhile, in the supply chain, Roshani et al. (2024) and Santos et al. (2025) demonstrated that flexible contracts, collaboration, and risk sharing between actors can increase network resilience.

Thus, sharing no longer simply means "transferring risk to another party." In many contexts, sharing is more accurately understood as the redistribution of exposure, responsibility, information, and risk-management capacity. Consequently, the success of sharing depends heavily on the quality of interorganizational relationships.

The limitation of this strategy is the emergence of secondary risks. Dependence on third parties can create counterparty risk, coordination failure, contractual dependency, and information leakage. Therefore, sharing does not eliminate risk, but rather changes the structure of risk distribution.

Retention: From Risk Acceptance to Strategic Decision

Retention is the strategy that has undergone the most significant conceptual change. The literature analyzed shows that retention can no longer be viewed as a passive option or a "residual risk" after other strategies have been implemented. Instead, retention can become a strategic decision when the costs of avoidance, reduction, or transfer outweigh the benefits gained.

Bei et al. (2023) demonstrated the need for a balance between risk sharing and risk retention in insurance portfolios. Zhang and Zhang (2024) demonstrated that retention decisions are related to information quality and information asymmetry. Hibbeln and Osterkamp (2025) demonstrated that retention can even serve as a discipline mechanism and enhance market confidence.

In the context of MSMEs, Mumassabba et al. (2025) demonstrated that resource constraints can lead organizations to consciously retain certain risks. This suggests that retention can be a rational choice when the risk is at a bearable level and the costs of transferring or mitigating it are too high.

However, retention can only be categorized as an effective strategy if it is implemented intentionally, informed, and monitored. If an organization assumes a risk because it is unknown or has no other option, the condition is more accurately understood as unmanaged exposure. Therefore, retention must be accompanied by an evaluation of the organization's financial capacity, risk tolerance, reserves, and ability to absorb losses.

3.3 Interaction and Combination Between Strategies

One of the most important findings of this SLR is that the four strategies do not operate independently. The literature shows a strong tendency toward a combination of strategies according to risk level, organizational capacity, and environmental conditions. This finding also strengthens the argument in the Introduction that modern risk responses are better understood as a portfolio of decisions rather than a single choice.

The most visible combination pattern is reduction and sharing. Roshani et al. (2024) and Santos et al. (2025) show that organizations can reduce risk by diversifying and strengthening internal processes while simultaneously sharing exposure with suppliers and partners. This combination results in a more flexible risk architecture because the organization is not entirely dependent on internal controls or external parties.

The combination of sharing and retention also appears strong in the financial and insurance sectors. Bei et al. (2023) suggest that organizations need to determine the optimal proportion of transferred and retained risks. Their findings suggest that excessive risk transfer can incur high costs, while excessive retention can increase exposure.

Avoidance and reduction can also be used sequentially. Organizations can first avoid risks that fall outside tolerance limits, then apply reduction measures to those that are still manageable. Thus, a risk response strategy can form a hierarchy of decisions: unacceptable risks are avoided, manageable risks are reduced, some risks are transferred or shared, and residual risks that remain within tolerance limits are retained.

Based on this synthesis, the relationship between the four strategies can be constructed as an adaptive system. Avoidance serves as a mechanism for eliminating exposure to unacceptable risks; reduction as a mechanism for strengthening internal capacity; sharing/transfer as a mechanism for redistributing exposure; and retention as a mechanism for managing residual risks that the organization can consciously bear.

Thus, the literature does not support the view that one strategy is always better than another. What matters more is strategic fit, namely the congruence between risk characteristics, organizational capacity, response costs, tolerance levels, and strategic objectives. This finding reinforces the comparative results of the study in the source text, which showed a complementary relationship between the four strategies.

Factors Influencing Strategy Selection

A cross-study synthesis shows that the choice of risk strategy is influenced by at least six groups of factors.

First, risk characteristics. Risks with extreme consequences and very low tolerance levels are more likely to encourage avoidance. Conversely, risks with a manageable probability or impact are more suited to reduction. Risks that can be distributed through contractual or financial mechanisms open up opportunities for sharing, while relatively small risks that the organization can bear can be directed toward retention.

Second, organizational capacity. Leng et al. (2022) and Mumassabba et al. (2025) show that resource constraints influence strategic choices. Organizations with stronger financial and technological capacity have a greater ability to reduce and share risks, while those with limited resources tend to retain some risk.

Third, the quality of information and technology. Zhuang et al. (2023), Liu et al. (2019), and Hafez et al. (2024) show that the ability to detect, process, and share information can improve the quality of risk decisions. Technology, therefore, is not only a mitigation tool but also determines the quality of an organization's risk intelligence.

Fourth, governance and ownership structure. Sari et al. (2025) show that institutional ownership can influence ERM effectiveness. Stronger governance increases the demand for transparency and accountability, thus influencing how organizations determine the level of risk to retain or transfer.

Fifth, organizational culture and communication. Nordin et al. (2021) and Semenova et al. (2021) show that organizational culture, communication, and stakeholder participation are critical elements for strategic success. Risk cannot be managed solely through formal procedures if individuals within the organization lack the awareness and courage to communicate risk information.

Sixth, the external environment and interdependence between organizations. Roshani et al. (2024), Santos et al. (2025), and Cremer (2024) show that increasing interdependence between organizations drives the development of sharing. Globalization and digitalization mean that risks no longer stop at organizational boundaries, so managing them requires cross-entity coordination.

This synthesis shows that risk response strategies are the result of the interaction between risk characteristics, organizational capacity, information quality, governance, risk culture, technology, and the external environment. Therefore, research on the effectiveness of risk strategies should avoid a deterministic approach that assumes certain strategies always produce better outcomes.

Risk Management Strategy Research Trends

Analysis of the selected studies reveals three main trends in the development of the literature. The first trend is the shift from risk control to strategic risk management. Anton and Nucu (2020), Leng et al. (2022), and Sari et al. (2025) show that ERM is increasingly integrated with governance, decision-making, performance, and value creation. This shift demonstrates that risk management is no longer positioned as a support function separate from organizational strategy.

The second trend is digitalization and data-driven risk management. Zhuang et al. (2023), Liu et al. (2019), and Hafez et al. (2024) point to the increasing use of artificial intelligence, blockchain, data analytics, and early warning systems. Technology enhances organizations' ability to identify risks, accelerate response, and improve coordination.

However, there is a paradox that needs to be considered. The technology used for risk reduction and avoidance can also create new risks. Reliance on digital systems, information security, algorithmic bias, privacy, and system failures can generate new exposures. Thus, digitalization should not only be viewed as a risk-reducing technology, but also as a source of technology-induced risk.

The third trend is the shift towards resilience and sustainability. Roshani et al. (2024), Santos et al. (2025), and Semenova et al. (2021) show that risk management is increasingly linked to an organization's ability to withstand, adapt, and recover from disruptions. From this perspective, the success of a risk strategy is measured not only by the ability to avoid losses but also by the ability to maintain organizational functions and create sustainability after a disruption.

Thus, the development of the literature demonstrates a transformation from a risk prevention paradigm to a risk resilience paradigm. Organizations cannot always prevent all risks, but they must have the capacity to anticipate, absorb, adapt, and recover from their impact.

Critical Analysis of Strengths and Limitations of the Literature

The analyzed literature has several important strengths. First, there is increasing integration between risk management theory and ERM, resilience, sustainability, technology, and governance. Anton and Nucu (2020), Leng et al. (2022), Roshani et al. (2024), and Santos et al. (2025) demonstrate the development of the literature toward a cross-disciplinary approach.

Second, research methods are increasingly diverse. Zhuang et al. (2023) used an artificial intelligence-based early warning model, while Bei et al. (2023) and Zhang and Zhang (2024) used a mathematical approach to analyze the optimization of sharing and retention. On the other hand, Semenova et al. (2021) and Nordin et al. (2021) demonstrated the importance of qualitative approaches to understanding social and behavioral dimensions. This diversity enriches understanding of risk but also complicates direct comparisons between research findings.

Third, the literature has strong practical relevance. Supply chain research generates recommendations regarding diversification, collaboration, and digitalization; financial research provides a basis for determining risk transfer and retention proportions; and MSME research demonstrates how resource constraints influence strategic choices.

However, there are some significant limitations.

First, there are limitations to generalizability. Many studies focus on specific sectors such as finance, manufacturing, and supply chains. The public sector, education, healthcare, and non-profit organizations are relatively underrepresented. This limits the literature's ability to explain whether the risk strategy mechanisms found in business organizations can be applied to organizations with different objectives and accountability structures.

Second, the limited integration of human factors. Although Nordin et al. (2021) and Semenova et al. (2021) point to the importance of communication and culture, most models still emphasize economic, technical, and financial variables. Yet, risk decisions are ultimately made by humans and influenced by perception, leadership, culture, and incentives.

Third, inconsistent terminology. The terms retention and sharing can have different meanings in the financial sector than in the supply chain. This conceptual difference presents a challenge in synthesizing across studies. Therefore, more consistent operational definitions are needed to allow for more valid comparisons between strategies.

Fourth, longitudinal limitations. Some studies are cross-sectional, so they cannot explain how organizations change strategies when risk levels change. In fact, a strategy that is effective in one period may not remain effective in the next.

Fifth, the imbalance between the benefits and risks of digitalization. The literature tends to emphasize the benefits of AI, blockchain, and digital analytics in reducing risk, but has not sufficiently addressed the risks these technologies create. This finding presents an important area for further research.

Conceptual Synthesis of Risk Management Strategies

Based on the synthesis of 15 studies, a conceptual framework can be formulated that the selection of a risk response strategy is a contingent process influenced by risk characteristics and organizational capacity. In the initial stage, organizations identify and evaluate risk levels. Risks that fall outside tolerance can be directed toward avoidance. Risks that are still acceptable but require control are directed toward reduction. Risks that have the potential to be distributed to other parties can be managed through sharing/transfer. Meanwhile, residual risks that are still within the organization's capacity can be managed through retention.

The framework is not linear. SLR results instead demonstrate an iterative process. Changes in the environment, technology, regulations, organizational capacity, and risk levels can cause an organization to shift its strategy from one form to another. Previously retained risks can be transferred when their value increases. Previously mitigated risks can be avoided when the consequences become unacceptable. Conversely, an organization may choose retention after gaining better information and increasing internal capacity.

Thus, the effectiveness of risk strategy can be understood through the concept of strategic alignment between four main components, namely:

risk characteristics → organizational capacity and context → strategy choices/combinations → risk and organizational outcomes.

Within this framework, technology, governance, risk culture, and information quality serve as factors that strengthen or weaken the relationship between risk characteristics and the chosen strategy.

This synthesis expands the traditional understanding of the four risk strategies. Avoidance, reduction, sharing/transfer, and retention should not be positioned as mutually exclusive options, but rather as a portfolio of risk responses that can be combined according to circumstances. This perspective better aligns with the multidimensional, interconnected, and dynamically changing nature of modern risk.

Research Gap and Future Research Agenda

Based on a synthesis of 15 studies, there are five major gaps.

First, there are still limited integrative conceptual models that simultaneously explain the relationships between avoidance, reduction, sharing/transfer, and retention. Previous studies have discussed the interactions between strategies in specific contexts, but few have produced cross-sector models that explain the dynamic mechanisms of strategy selection.

Second, there are limitations to longitudinal and mixed methods research. The predominance of cross-sectional research means that changes in strategy effectiveness over time are not adequately understood. Future research should utilize longitudinal studies, panel data, system dynamics, or mixed methods approaches to link quantitative changes to social and behavioral factors.

Third, there are sectoral and geographic gaps. The literature is relatively concentrated on the financial, manufacturing, and supply chain sectors, while the public, education, health, and non-profit sectors remain underexplored. This gap is significant because public and social organizations have different incentive structures, accountability, and objectives than business organizations.

Fourth, studies on the risks posed by digitalization are still limited. AI, blockchain, and big data are often positioned as mitigation tools, but the risks arising from technological dependency, algorithmic bias, privacy, and data security have not received adequate attention.

Fifth, the dimensions of risk culture, leadership, communication, and human behavior are still not firmly integrated into risk strategy models. However, Nordin et al. (2021) and Semenova et al. (2021) show that social and communication factors can determine the success of strategy implementation.

In addition to these five gaps, there is a need to develop multidimensional indicators of strategic effectiveness. Effectiveness is not simply measured by profitability or financial stability but must encompass resilience, sustainability, operational continuity, stakeholder trust, and the organization's ability to adapt to change.

Integrative Discussion

Overall, the SLR results demonstrate that the development of risk management theory and practice has shifted from a protection-oriented risk management paradigm to adaptive and value-oriented risk management. This shift is evident in the increasing integration between risk management and ERM, the use of predictive technology, cross-organizational collaboration, attention to ESG, and a growing understanding of retention as a strategic decision.

The most important finding of this study is that risk management effectiveness cannot be determined simply by asking which strategy is best. A more relevant question is which strategy best aligns with the risk characteristics, organizational capacity, tolerance level, response costs, and strategic objectives. This perspective explains why reduction is dominant, but not always the optimal choice; why avoidance is necessary for certain risks but can eliminate opportunities; why sharing is increasingly important in interdependent systems; and why retention can be a rational strategy when implemented consciously and meticulously.

These findings also demonstrate that a resilient organization is not one that successfully eliminates all risks, but rather one that is able to build a portfolio of adaptive responses. Organizations need to know which risks to avoid, which to mitigate, which to share, and which to rationally retain. Thus, the ability to select and combine strategies is part of risk management capability.

Ultimately, this SLR demonstrates that modern risk management has three main characteristics: integrative, adaptive, and contextual. Integrative because risk strategy must be linked to governance, strategy, technology, and sustainability; adaptive because strategic choices must evolve with changes in risk and the environment; and contextual because strategy effectiveness is influenced by sector, organizational size, resources, culture, regulations, and environmental conditions.

Therefore, the primary contribution of this synthesis lies in affirming that avoidance, reduction, sharing/transfer, and retention should not be understood as four stand-alone alternatives, but rather as components of a dynamic risk response architecture. This perspective provides a conceptual foundation for further research to develop empirical models that examine how risk characteristics and organizational factors determine strategy configurations, and how these configurations ultimately influence organizational resilience, sustainability, and performance.

CONCLUSION

The results of a Systematic Literature Review (SLR) of 15 publications indicate that risk management strategies of avoidance, reduction, sharing/transfer, and retention have evolved from a reactive approach to a more proactive, adaptive, and strategic approach. Avoidance is particularly relevant for extreme and tolerable risks, reduction has become the most widely used strategy through strengthening organizational control and capacity, sharing/transfer is increasingly developed through collaboration, insurance, and risk transfer mechanisms, while retention is understood as a strategic decision to bear risks that are still within the organization's capacity.

Research findings indicate that these four strategies are not mutually exclusive but can be combined into a risk response portfolio tailored to the risk characteristics and conditions of the organization. Strategy effectiveness is influenced by organizational capacity, information quality, technology, governance, risk culture, and the external environment. The literature also demonstrates the increasingly strong integration of risk management with Enterprise Risk Management, digitalization, resilience, and sustainability, so that risk management is no longer solely oriented toward loss prevention but also focuses on the organization's ability to adapt and maintain value creation.

However, research gaps remain, including the limited availability of integrative models that dynamically link the four strategies, the limited availability of longitudinal and mixed-methods studies, and limited research in the public, education, health, and non-profit sectors. Future research needs to develop empirical models that integrate risk characteristics, organizational capacity, technology, risk culture, and governance, and measure strategy effectiveness not only based on financial performance but also on organizational resilience, sustainability, and adaptability to uncertainty.

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