

Islamic Management Control Systems in SMEs: A Systematic Literature Review on Shariah Governance and Business Sustainability

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ABSTRACT

Introduction: Management Control Systems (MCS) are important for guiding organizational activities toward the achievement of strategic objectives. However, the design and implementation of MCS in Small and Medium Enterprises (SMEs) are influenced by their limited resources, simple organizational structures, owner-centered management, and changing external environments. This study aims to identify and classify the internal and external determinants of MCS design and implementation in SMEs and to develop a conceptual framework based on existing empirical evidence.

Methods: This research employs a Systematic Literature Review (SLR) using articles retrieved from the Scopus database. The review covers research articles published between 2010 and 2025 and applies predefined inclusion and exclusion criteria, with the selection process following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. A total of 37 relevant articles were selected and thematically synthesized.

Results: The findings indicate that MCS in SMEs consists of diverse mechanisms, including Levers of Control, formal control, and informal control. The determinants are classified into internal factors, namely firm size, managerial competence, organizational structure, and organizational culture and ownership, and external factors, namely competitive intensity, environmental uncertainty, and government regulation and institutional pressure. Managerial competence and organizational culture and ownership are among the most frequently identified determinants. SMEs tend to rely on flexible and informal controls, while formal controls become more relevant as business complexity increases.

Conclusion and suggestion: This study concludes that MCS design in SMEs is context-dependent and shaped by the interaction between internal and external factors. Future research should empirically test the proposed framework across specific sectors and regional contexts.

Keywords: *Management Control Systems, SMES, Internal Factors, External Factors, Systematic Literature Review*

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INTRODUCTION

Small and Medium Enterprises (SMEs) are an important pillar of the global economy. According to data from the World Bank, more than 90% of businesses worldwide fall into the SME category, making a significant contribution to job creation, accounting for more than 50% of employment, and to gross domestic product (GDP) across both developing and developed countries. In Indonesia, for example, the Coordinating Ministry for Economic Affairs reports that SMEs serve as the backbone of the economy, contributing more than 60% to GDP and absorbing nearly 97% of the total workforce. This vital role makes SMEs a strategic subject for the development of policies and managerial practices, including Management Control Systems (MCS). Management Control Systems are an important component of the managerial process that serve to guide organizational behavior in alignment with strategic objectives (Farida et al., 2022). In general, Rehman et al., (2023) and Haseeb et al., (2019) define MCS as systems designed to ensure that organizational strategies and objectives can be achieved effectively and efficiently through processes of planning, control, and evaluation. Merchant & Stede (2017) further emphasize that MCS encompass not only formal control mechanisms, such as budgeting and performance measurement, but also informal controls, including organizational culture and leadership.

MCS consist of several key interrelated elements. First, budgeting serves as a tool for allocating resources and establishing financial targets. Second, cost control helps organizations manage and reduce operational waste. Third, performance evaluation provides feedback on the achievement of organizational targets through both financial and non-financial indicators. Fourth, strategic control guides organizations in adapting their strategies to changes in the external environment and market dynamics (Graña-Alvarez et al., 2024); (Pavlatos, 2021) In the SMEs, the implementation of MCS often requires various adjustments due to their unique characteristics. The characteristics of SMEs create a need for control approaches that differ from those used in large firms. According to (Chegri et al., 2021), SMEs generally have relatively flat organizational structures, direct owner involvement in decision-making, and limited human and financial resources. Therefore, MCS in SMEs tends to be informal, flexible, and based on trust-based relationships rather than highly structured control systems (Graña-Alvarez et al., 2024).

Furthermore, within the framework of contingency theory, the effectiveness of MCS is strongly influenced by contextual factors, both internal and external (Dropulić, 2013). Internal characteristics, such as firm size, managerial competence, and organizational structure, influence the extent to which MCS can be formalized (Mayegle & Nguidjol, 2017). On the other hand, external pressures, such as environmental uncertainty, market competition, and regulation, are also important determinants of the design and use of MCS in SMEs (Frare et al., 2023a). However, the implementation of MCS in SMEs faces challenges that differ considerably from those encountered by large firms. Simpler organizational structures, limited financial and human resources, and low levels of managerial process formalization give SMEs unique characteristics that require different control system designs (Crespo et al.,

2019). Many SMEs still rely on informal controls and personal trust rather than standardized procedures. In addition, market dynamics and high levels of external uncertainty often affect the flexibility and capacity of SMEs to implement structured managerial practices (Pedroso & Gomes, 2020); (Pavlatos, 2021).

Over the past several decades, numerous studies have attempted to explore the factors influencing the design and use of MCS in SMEs. Nevertheless, the existing literature reveals considerable variation in findings and methodological approaches. Some studies emphasize the importance of internal determinants, such as firm size, business strategy, and organizational structure (Roffia & Dabić, 2024); (Ferraris et al., 2017); (Dvorsky et al., 2024), whereas others focus more on the influence of external factors, such as competitive intensity and market regulation (Urban, 2013); (Voss & Brettel, 2014). This indicates a research gap in consolidating these dispersed findings into an integrated framework, particularly in the context of SMEs, whose characteristics and control needs differ from those of large firms. Moreover, many previous studies have focused primarily on large or multinational companies as the main objects of MCS research. However, the design and effectiveness of control systems in SMEs are strongly influenced by context-specific factors, such as resource constraints, an owner-centered management approach, and organizational characteristics that are more agile but less formally documented (Durendez et al., 2011); (Voss & Brettel, 2014). The lack of comprehensive studies mapping the key determinants of MCS in SMEs, particularly based on empirical evidence across different contexts and regions, represents an important conceptual and practical challenge that needs to be addressed.

This article aims to address this gap through a systematic review of the literature on the determinants of management control system design in SMEs. The primary objective of this article is to identify and classify the internal and external determinants most frequently examined in previous studies, as well as to evaluate how these factors influence the structure and effectiveness of control systems adopted by SMEs. Through this approach, the article is expected to contribute to the development of MCS theory in the context of SMEs while providing practical insights for business owners, consultants, and policymakers concerned with strengthening SME governance. To address this need, this study conducts a Systematic Literature Review (SLR) of studies examining the determinants of the design and implementation of MCS in SMEs. Accordingly, this study addresses three main research questions:

RQ1: What are the characteristics of Management Control Systems (MCS) design adopted by Small and Medium Enterprises (SMEs)?

RQ2: What internal factors influence the implementation and effectiveness of MCS in SMEs?

RQ3: How do external factors influence the use of MCS in the context of SMEs?

By addressing these three questions through a systematic review of literature published over the past fifteen years (2010–2025), this article aims to develop a conceptual map of the determinants of MCS in SMEs and highlight research gaps that remain underexplored. This study is also expected to provide a foundation for further research using quantitative, qualitative, or mixed-method approaches, as well as serve as a reference for the development of evidence-based strategic policies aimed at strengthening the managerial capacity of SMEs across various industrial sectors

LITERATURE REVIEW

MCS refer to a set of mechanisms used by organizations to direct activities, monitor performance, and ensure that organizational members' actions are aligned with established objectives (Merchant & Stede 2017). In the context of small and medium-sized enterprises, the implementation of MCS has distinctive characteristics compared with larger organizations. Relatively simple organizational structures, limited resources, and the direct involvement of owners or managers in daily operations may influence the form and degree of formality of control mechanisms used (Chegri et al., 2021). Previous literature indicates that MCS in SMEs is not only concerned with controlling activities but also with the use of financial and non-financial information to support decision-making. (Curado et al., 2022), for example, found that the perceived importance of financial measures was positively associated with the perceived importance of various non-financial measures among SMEs, while different configurations of individual and organizational conditions were associated with differences in these perceptions. This finding indicates that the use of information within MCS may vary according to organizational conditions and decision-makers' characteristics. As organizations increase in size and complexity, formal mechanisms such as budgeting, performance measurement, and reporting become increasingly relevant, although informal mechanisms such as direct supervision, interpersonal communication, trust, and social relationships continue to play an important role (Voss & Brettel, 2014).

One important perspective for understanding MCS is the Levers of Control framework developed by Simons 1995. The framework identifies four complementary control systems: belief systems, boundary systems, diagnostic control systems, and interactive control systems. Belief systems are used to communicate organizational values, objectives, and direction; boundary systems establish behavioral and risk-related limits that should be avoided; diagnostic control systems are used to monitor performance against predetermined targets; while interactive control systems emphasize management involvement in discussing strategic information and addressing environmental uncertainty. Tessier & Otley (2012) subsequently developed the conceptualization of the LoC framework by providing a more systematic explanation of the characteristics and relationships among different types of control. Previous research also indicates that LoC mechanisms may interact with informal forms of control. Massaro et al. (2019), for instance, found that trust within SME networks could substitute for boundary, diagnostic, and belief controls, while trust also worked together with interactive controls to support knowledge transfer. This finding suggests that control mechanisms do not necessarily operate independently but may be combined with trust-based and interpersonal mechanisms. Thus, the LoC framework provides a basis for understanding how organizations balance the need to achieve predetermined objectives with the need to learn, adapt, and respond to changes in the business environment.

In addition to the LoC framework, the MCS literature on SMEs distinguishes between formal and informal controls. Formal controls include explicitly designed and documented mechanisms such as budgets, standard operating procedures, reporting systems, performance measurement, and results-based evaluation. Informal controls, in contrast, operate through organizational culture, interpersonal relationships, leadership, trust, and shared values. In small firms, these two forms of control may be used simultaneously. Voss & Brettel (2014), for example, emphasized the importance of combining formal and informal controls in explaining control effectiveness in small firms. The findings of Massaro et al. (2019) further support this perspective by demonstrating that trust can function as a control mechanism within SME networks and can interact with several control mechanisms to support knowledge transfer. A similar pattern is evident in Johnstone (2022), who found that

environmental management control systems in SMEs extend beyond top management and involve external audits and institutional requirements, operating at strategic, operational, and inter-organizational levels. The study also showed that formalized hierarchical control represents only one control mechanism, while interpersonal communication and other internal mechanisms are also employed. Therefore, control in SMEs should not be understood as a choice between formal and informal mechanisms, but rather as a combination of mechanisms that can be adapted to organizational needs and environmental conditions.

Previous studies have also identified various internal factors that may influence the adoption and configuration of MCS in SMEs. These factors include firm size, managerial competence, organizational structure, organizational culture, and ownership characteristics. Relatively simple organizational structures and the direct involvement of owners in decision-making may enable SMEs to rely more heavily on direct and informal control mechanisms. Conversely, increasing organizational size and complexity may create a greater need for more structured and formal control mechanisms (Chegri et al., 2021; Voss & Brettel 2014). Regarding ownership characteristics, Broccardo et al., (2016) identified differences in the use of advanced management control systems and performance measurement systems between family firms and non-family firms, suggesting that ownership characteristics represent an organizational factor associated with the use of management control systems. Feranita et al., (2021) similarly found that family management was associated with MCS use in family SMEs, while MCS use served as a mechanism linking family management to technological innovation outcomes. Managerial competence and capabilities are also important internal factors. Graña-Alvarez et al., (2024) found that entrepreneurs' financial literacy moderated the relationships between financial and non-financial MCS and financial leverage in business-incubated start-ups. Hauser (2022) further showed that the level of information and awareness among decision-makers regarding trade-control regulations was associated with the implementation of compliance measures proportional to the level of risk. Within the literature reviewed in this study, managerial competence as well as culture and ownership are also relatively frequently identified as internal determinants of MCS. These findings indicate that MCS implementation is not solely related to the availability of control instruments, but also to the capabilities, characteristics, and internal conditions of those responsible for managing the organization.

In addition to internal characteristics, external environmental conditions may influence the design and use of MCS in SMEs. Environmental uncertainty, competitive intensity, technological development, and regulatory pressures may increase organizations' need for information and control mechanisms that support adaptation. Environmental uncertainty, in particular, concerns the difficulty of predicting changes in market demand, customer preferences, competitors' actions, and technological developments. Alves & Lourenço, (2022) found that the use of non-financial performance measures (NFPM) in SMEs was associated with dimensions of perceived environmental uncertainty, particularly hostility and dynamism, as well as decentralization. This finding suggests that the selection of performance measures may be associated with environmental conditions and organizational structure. Meanwhile, Fouiteh et al., (2024) found that investment costs, sector characteristics, economic conditions, competing investment priorities, and regulatory procedures may influence SMEs' decisions to adopt energy-efficiency measures. Hauser (2022) also demonstrated that external regulatory requirements do not automatically result in identical forms of control, as responses to regulation are associated with decision-makers' level of information and awareness. Johnstone (2022) provides further support by showing

that external audits and institutional requirements can form part of environmental control systems in SMEs. Under increasingly dynamic conditions, MCS may therefore serve not only to monitor performance achievement but also to provide information that helps managers understand environmental changes and respond to them. The literature reviewed in this study indicates that environmental uncertainty is one of the external factors consistently associated with the design and use of MCS in SMEs.

Overall, the literature indicates that MCS in SMEs is a context-dependent phenomenon shaped by both organizational and environmental conditions. No single form of control can be uniformly applied across all SMEs because MCS configurations are influenced by the internal characteristics and external conditions faced by each organization. Previous studies also demonstrate that the presence of a particular control mechanism does not necessarily produce direct organizational outcomes. Saunila et al., (2024), for example, found that performance measurement and management (PMM) did not make a direct contribution to business performance or sustainability performance, whereas supply chain governance mediated the relationship between PMM and business performance. This finding indicates that the context and organizational mechanisms linking measurement systems to managerial action may influence the outcomes achieved. The previous studies reviewed in this article also show that research attention remains distributed across different control mechanisms and contextual factors. Some studies emphasize internal factors such as managerial competence, organizational structure, firm size, culture, ownership, and trust, whereas others focus on external factors such as environmental uncertainty, competition, technological development, regulation, and institutional pressures. Therefore, a systematic review is needed to integrate these findings and develop a more comprehensive understanding of MCS characteristics, control mechanisms, and the internal and external factors that influence their implementation in SMEs.

METHOD

This study employs a Systematic Literature Review (SLR) approach to identify, classify, and synthesize findings related to the determinants of MCS design in SMEs. The SLR approach was selected because it provides a systematic, transparent, and replicable framework for reviewing scientific literature relevant to the research topic. Through this method, the researchers can develop a comprehensive and structured overview of the conceptual and empirical developments that have emerged over a specific period. Furthermore, SLR enables researchers to identify recurring patterns, trends, and findings, as well as highlight research gaps that warrant further investigation in future studies. Thus, this approach not only enhances the quality of the theoretical review but also makes a significant contribution to developing a conceptual map and identifying future research directions in the field of Management Control Systems within the SME context.

To ensure that the literature review is systematic, relevant, and aligned with the research objectives, clear selection criteria are required in the study identification process. This step aims to screen and select articles that are directly relevant to the research focus, namely studies examining the determinants and characteristics of Management Control Systems (MCS) in Small and Medium Enterprises (SMEs). By establishing specific inclusion and exclusion criteria, the researchers can ensure that the literature analyzed demonstrates thematic relevance, methodological quality, and organizational contextual relevance.

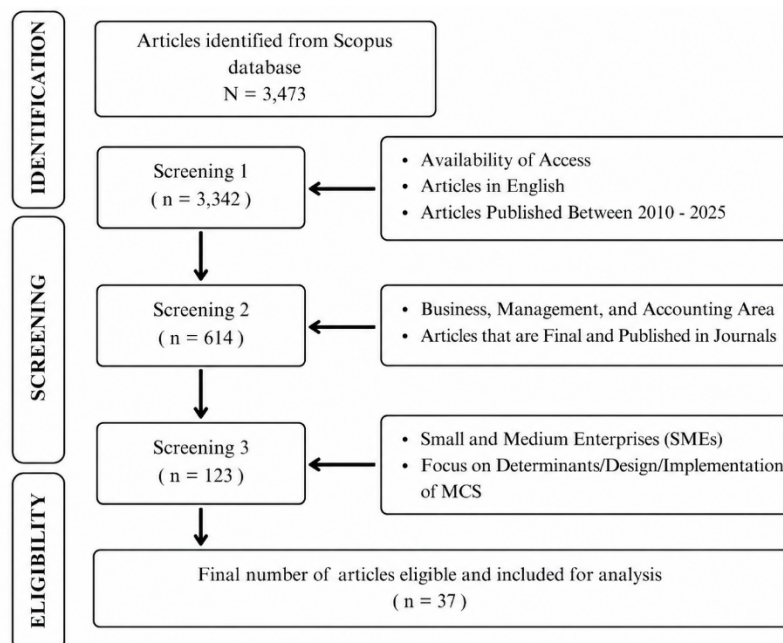
Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Database	Scopus	Databases other than Scopus
Language	English	Languages other than English
Source	Research articles with full-text access	Research articles without full-text access
Article Type	Research articles	Types of articles other than research articles
Publication Period	The past 15 years (2010–2025)	Articles published before 2010
Main Topic	Studies primarily focusing on the determinants and/or design of Management Control Systems (MCS)	Studies that only discuss MCS in general
Object	Small and Medium Enterprises (SMEs) as the primary unit of analysis	Studies focusing on firms or companies in general
Subject Area	Business, Management, and Accounting	Subject areas other than Business, Management, and Accounting

Data source: Author, 2026

The article search in this study was conducted using the Scopus database, which is recognized as one of the largest and most reputable scientific literature indexing databases. To identify relevant publications, a systematic search strategy was developed using Boolean operators and search terms tailored to the focus of the study. The advanced query used for the search was:

("management control system" OR "MCS") AND ("small and medium enterprises" OR SMEs OR "small business") AND (determinants OR "factors influencing" OR antecedents) AND PUBYEAR > 2009 AND PUBYEAR < 2026 AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (OA , "all")) AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO(PUBSTAGE , "final"))

**Figure 1. PRISMA Flow Diagram**

The figure 1 explains the article selection process, starting with 3,473 articles identified from Scopus. The articles were screened based on accessibility, language, publication period, research field, article type, and relevance to SMEs and Management Control Systems (MCS). After several screening stages, 37 eligible articles were finally selected for analysis. Following the data collection process through the Scopus database, this study employed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework, which consists of three screening stages.

RESULT AND ANALYSIS

Based on the systematic selection process conducted through the Scopus database, 37 relevant articles were identified in accordance with the established inclusion and exclusion criteria.

Table 2. List of Journals and Their Ratings

No	Journal	Article Tittle	Author	Scopus Rating
1	Problems and Perspectives in Management	Performance measurement by small and medium enterprises in Cape Metropolis, South Africa	(Maduekwe & Kamala, 2016)	Q2
2	Global Business and Economics Review	Management control in Italian SMEs	(Ferraris et al., 2017)	Q4
3	International Journal of Innovation and Technology Management	Role of Management Control Systems in Quality, Innovation and Organizational Performance in Portugal SMES Companies	(Antunes et al., 2018)	Q3
4	Journal of Small Business Strategy	SMEs Managers' Perceptions of MCS: A Mixed Methods Approach	(Antunes et al., 2018)	Q2
5	Journal of Business Research	The adoption of management control systems by start-ups: Internal factors and context as determinants	(Crespo et al., 2019)	Q1
6	Asia Pacific Management Review	Investigating the success of knowledge management: An empirical study of small and medium-sized enterprises	(Wang & Yang, 2016)	Q1
7	Journal of Small Business Management	The Effectiveness of Management Control in Small Firms: Perspectives from Resource Dependence Theory	(Voss & Brettel, 2014)	Q1
8	Journal of Applied Accounting Research	The effectiveness of management accounting systems in SMEs: a Multidimensional measurement approach	(Pedroso & Gomes, 2020)	Q1
9	Journal of Small Business Strategy	The interplay of strategic orientations and their influence on SME performance	(Pett et al., 2019)	Q2
10	Journal of Open Innovation: Technology, Market, and Complexity	The relationship between SME owner-manager characteristics and risk management strategies	(Chakabva & Tengeh, 2023)	Q1
11	Review of Managerial	The role of management control	(Roffia &	Q1

No	Journal	Article Title	Author	Scopus Rating
	Science	and integrated information systems for the resilience of SMEs	Dabić, 2024)	
12	Journal of Small Business Strategy	Beyond linearity and resource-based perspectives of SME growth	(Salder et al., 2020)	Q2
13	Industrial Management and Data Systems	Complementary and contingent value of SMEs' data capability and supply chain capability in the competitive environment	(Hautala-Kankaanpää, 2023)	Q1
14	Journal of Innovation and Knowledge	Do environmental turbulence, dynamic capabilities, and artificial intelligence force SMEs to be innovative?	(Al Dhaheri et al., 2024)	Q1
15	Technological Forecasting and Social Change	Steering digitalization and management control maturity in small and medium enterprises (SMEs)	(Broccardo et al., 2024)	Q1
16	Journal of Small Business Management	Environmental practice adoption in SMEs: The effects of firm proactive orientation and regulatory pressure	(Tyler et al., 2024)	Q1
17	Journal of Business & Industrial Marketing	Exploring the effects of SMEs' platform-based digital connectivity on firm performance—the moderating role of environmental turbulence	(Rajala & Hautala-Kankaanpää, 2022)	Q1
18	Small Business Economics	Formal and informal financing decisions of small businesses	(Nguyen & Canh, 2021)	Q1
19	Innovar: Revista de Ciencias Administrativas y Sociales	Innovative culture, management control systems and performance in small and medium-sized spanish family firms	(Durendez et al., 2011)	Q3
20	Journal of Management Accounting Research	Management Accounting in Small and Medium-Sized Enterprises: Current Knowledge and Avenues for Further Research	(López & Hiebl, 2015)	Q1
21	Journal of Risk and Financial Management	Management Control Systems and International Entrepreneurship in Small, Young Firms from Resource-Based Theory, Contingence, and Effectuation Approach Perspectives	(Pérez Sigüenza et al., 2022)	Q2
22	European Journal of Family Business	Management Control Systems and Performance in Small and Medium Family Firms	(Duréndez et al., 2016)	Q3
23	Journal of Innovation and Knowledge	Moderating role of national culture on the association between organizational culture and organizational commitment among SME's personnel	(Bokhari et al., 2024)	Q1
24	Management Research Review	Financial performance of SMEs: impact of ownership structure and board composition	(Lappalainen, J and Niskanen,	Q1

No	Journal	Article Tittle	Author	Scopus Rating
			2010)	
25	Asia Pacific Management Review	The Impact of Internal Control on Performance of Small and Medium-Sized Enterprises in an Emerging Economy	(Tam & Tuan, 2021)	Q1
26	IIMB Management Review	Critical success factors for implementation of supply chain management in Indian small and medium enterprises and their impact on performance	(Kumar et al., 2015)	Q3
27	International Journal of Hospitality Management	Drivers of management control systems in tourism start-ups firms	(Pavlatos, 2021)	Q1
28	British Accounting Review	Management control systems, business financial literacy and financial leverage in business-incubated start-ups	(Graña-Alvarez et al., 2024)	Q1
29	Journal of Cleaner Production	Unraveling the adoption patterns of energy efficiency measures in SMEs: A mixed-methods analysis	(Fouiteh et al., 2024)	Q1
30	International Journal of Operations and Production Management	The importance of performance measurement and management in sustainable supply chain governance among SMEs	(Saunila et al., 2024)	Q1
31	Sustainability Accounting, Management and Policy Journal	The means to substantive performance improvements – environmental management control systems in ISO 14001– certified SMEs	(Johnstone, 2022)	Q1
32	Journal of Management Control	Trust, control and knowledge transfer in small business networks	(Massaro et al., 2019)	Q2
33	European Journal of Family Business	The Role of Family Management and Management Control Systems in Promoting Technological Innovation in Family SMEs	(Feranita et al., 2021)	Q3
34	Journal of Management Control	The use of non-financial performance measures for managerial compensation: evidence from SMEs	(Alves & Lourenço, 2022)	Q2
35	Journal of Business Ethics	Trade-Control Compliance in SMEs: Do Decision-Makers and Supply Chain Position Make a Difference?	(Hauser, 2022)	Q1
36	Contemporary Accounting Research	Entrepreneurial Ecosystems as Amplifiers of the Lean Startup Philosophy: Management Control Practices in Earliest-Stage Startups	(Becker & Endenich, 2023)	Q1
37	Administrative Sciences	Effect of Selected Determinants on the Sustainability of SMEs: Does Gender Matter?	(Dvorsky et al., 2024)	Q2

For further analytical refinement, this section presents the results of the classification based on 37 core articles representing the main research trends concerning the determinants and characteristics of Management Control Systems (MCS) in Small and Medium Enterprises (SMEs) over the period 2010–2025. Based on the thematic synthesis, the determinants of Management Control Systems in SMEs can be classified into two main categories: internal factors and external factors.

Table 3. Classification of Management Control System Mechanisms

No	Approach Control	Referensi	Desain MCS
1	Levers of Control	(Fouiteh et al., 2024); (Feranita et al., 2021); (Johnstone, 2022); (Ferraris et al., 2017); (Urban, 2013); (Chenhall & Moers, 2015); (Roffia & Dabić, 2024); (Al Dhaheri et al., 2024); (Broccardo et al., 2024); (Duréndez et al., 2016)	Interactive Control System
		(Massaro et al., 2019); (Maduekwe & Kamala, 2016); (Antunes et al., 2018); (Voss & Brettel, 2014); (Pett et al., 2019); (Durendez et al., 2011)	Belief Control Systems
		(Alves & Lourenço, 2022); (Hauser, 2022); (Lobo et al., 2023); (Antunes et al., 2018); (Wang & Yang, 2016); (Pedroso & Gomes, 2020); (Roffia & Dabić, 2024); (Durendez et al., 2011); (Tam & Tuan 2021)	Diagnostic Control System
		(Crespo et al., 2019)	Boundary Control System
2	Formal Control	(Frare et al., 2023a); (Becker & Endenich, 2023); (Lobo et al., 2023); (Dvorsky et al., 2024); (Ferraris et al., 2017); (Pedroso & Gomes, 2020); (Nguyen & Canh, 2021)	Action & Results Controls
3	Informal Control	(Fouiteh et al., 2024); (Frare et al., 2023a); (Massaro et al., 2019); (Maduekwe & Kamala, 2016); (Ferraris et al., 2017); (Urban, 2013); (Voss & Brettel, 2014); (Nguyen & Canh, 2021)	Personal & Cultural control

The mechanisms of MCS in SMEs are not uniform but encompass a variety of approaches that can be classified into several categories, reflecting variations in design and implementation that distinguish SMEs from larger firms. This diversity of approaches reflects the flexibility and adaptability of SMEs in responding to the internal and external challenges they face (Williams et al., 2016); (Frare et al., 2023b). Rather than having a single superior form of control system, organizations tend to adopt combinations of control mechanisms that are tailored to their specific characteristics and circumstances (Ferretti et al., 2024).

One widely used classification is the Levers of Control (LoC) framework developed by Simons (1995) and discussed by Tessier & Otley (2012), which categorizes control into four systems: belief systems, boundary systems, diagnostic systems, and interactive systems. As shown in Table 3, the application of belief and interactive systems appears to

be more prominent among SMEs than the use of diagnostic systems. This can be attributed to the substantial involvement of owners in shaping core organizational values and the need to respond rapidly to market dynamics. Studies by Chenhall & Moers (2015) dan Broccardo et al (2024) similarly indicate that SMEs tend to favor flexible and interaction-based controls over rigid and highly formalized systems.

In addition to the LoC framework, the classification of formal and informal controls is also considered in this study. SMEs tend to rely on informal control mechanisms based on trust, direct communication, and shared values. This tendency is closely associated with relatively flat organizational structures and the direct involvement of owners in operational activities (Feranita et al., 2021). Nevertheless, SMEs experiencing growth may gradually adopt more formal control mechanisms, such as budgeting, performance evaluation based on specific indicators, and periodic reporting. Ferraris et al (2017) and Pedroso & Gomes (2020) note that this transition often occurs as organizational complexity increases.

Control mechanisms can also be distinguished based on their focus on processes or outcomes. Among SMEs, result control is more frequently used because it is easier to implement in organizations where procedural documentation is relatively limited or incomplete (Becker & Eendenich, 2023); (Lobo et al., 2023). This allows owners to directly evaluate performance based on specific outputs, such as sales targets or net profit (Pavlatos, 2021). In contrast, action control, which requires process standardization, is generally less prevalent except among SMEs that have undergone digitalization or operate in highly regulated industries (Johnstone, 2022). Therefore, the choice of control mechanisms largely depends on managerial capacity and the nature of the business.

However, personal and cultural controls serve as key pillars in many SMEs, as these mechanisms are developed through interpersonal relationships, employee loyalty, and charismatic leadership grounded in trust (Frare et al., 2023b), (Feranita et al., 2021). Such value- and norm-based controls not only enhance employee engagement but can also serve as an instrument for maintaining organizational stability under conditions of limited resources (Nguyen & Canh, 2021). These mechanisms are therefore particularly suitable for informal organizational environments, although they need to be balanced with formal control instruments as the business develops and grows (Massaro et al., 2019). Overall, the classification of MCS mechanisms in SMEs reveals a broad spectrum of control approaches that accommodate internal and external dynamics while reflecting the adaptive nature of small and medium-sized organizations. (Massaro et al., 2019); (Fouiteh et al., 2024).

Tabel 4. Klasifikasi Determinan MCS dalam SMEs

Category	Key Determinants	Number of Articles	Related References
Internal	Firm size	2	(Roffia & Dabić, 2024); (Fouiteh et al., 2024)
	Managerial competence	10	(Kumar et al., 2015); (Pérez Sigüenza et al., 2022); (Nguyen & Canh, 2021); (Pett et al., 2019); (Wang & Yang, 2016); (Antunes et al., 2018); (Maduekwe & Kamala, 2016); (Lobo et al., 2023), (Becker & Eendenich, 2023); (Graña-Alvarez et al., 2024)
	Organizational structure	6	(Duréndez et al., 2016); (Broccardo et al., 2024); (Chenhall & Moers, 2015); (Crespo et al., 2019); (Ferraris et al., 2017); (Dvorsky et al., 2024)
	Organizational culture & ownership	10	(Durendez et al., 2011); (Einhorn et al., 2024); (Voss & Brettel, 2014); (Wang & Yang, 2016); (Crespo et al., 2019); (Antunes

			et al., 2018); (Feranita et al., 2021); (Massaro et al., 2019); (Fouiteh et al., 2024); (Chenhall & Moers, 2015)
External	Competitive intensity	4	(Urban, 2013); (Voss & Brettel, 2014); (Pett et al., 2019)
	Environmental uncertainty	7	(Pérez Sigüenza et al., 2022); (Al Dhaheri et al., 2024); (Pedroso & Gomes, 2020); (Crespo et al., 2019); (Antunes et al., 2018); (Alves & Lourenço, 2022); (Frare et al., 2023a)
	Government regulation & institutional pressure	4	(Einhorn et al., 2024); (Hauser, 2022); (Johnstone, 2022); (Saunila et al., 2024)

Data source: Author, 2026

Dominance of Internal Factors

Based on Table 4, internal factors can be seen as the most dominant determinants influencing the implementation of MCS in SMEs. Unlike large firms, which generally have highly structured and complex control systems, SMEs often face limitations in terms of resources, managerial knowledge, and organizational infrastructure (Crespo et al., 2019).

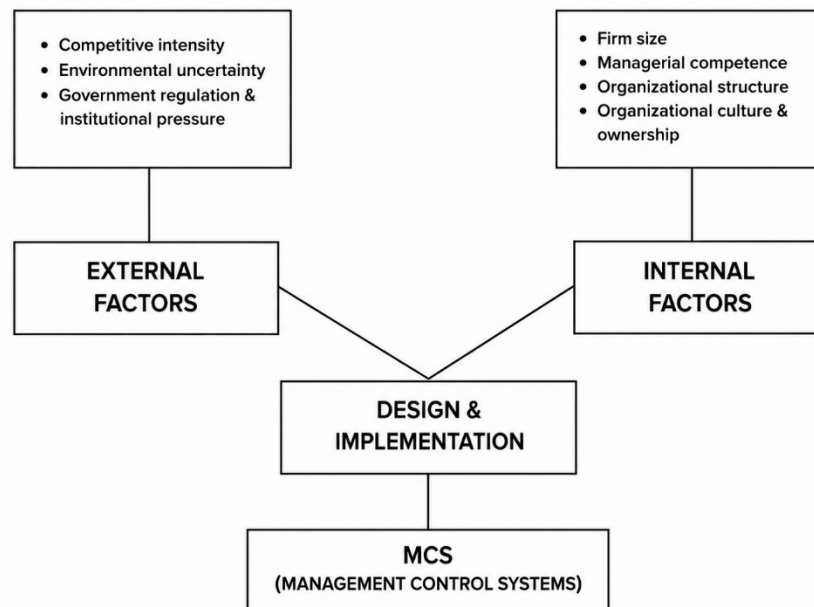
One of the most frequently identified internal factors is managerial competence. Studies by Kumar et al (2015); Pérez Sigüenza et al (2022); Nguyen & Canh (2021); Pett et al (2019); Antunes et al (2018) indicate that the background of SME owners or managers strongly influences how control systems are designed and implemented. Owners with backgrounds in business or accounting tend to have greater awareness of the importance of budget planning, performance evaluation, and systematic financial reporting. Conversely, limited managerial capabilities often result in relatively simple MCS that rely heavily on the owner's intuition (Wang & Yang, 2016).

In addition to managerial competence, organizational structure and organizational culture also play important roles in determining the form of MCS adopted by SMEs. SMEs characterized by flat organizational structures, a small number of employees, and direct communication between owners and employees tend to rely on informal control mechanisms, such as direct supervision, personal trust, and daily verbal communication (Duréndez et al., 2016); (Dvorsky et al., 2024). However, as SMEs grow, many begin to adopt more formal organizational structures, which subsequently increase the need for more standardized control systems, including standard operating procedures, performance targets, and management information systems.

Influence of the External Environment

In addition to internal factors, the external environment is also an important factor shaping the design and implementation of MCS. Unlike larger firms, which generally possess greater adaptive capacity, SMEs are more vulnerable to external dynamics due to their limited resources (Nguyen & Canh, 2021). Consequently, external pressures, such as market changes, regulatory developments, and economic turbulence, can directly influence the need for control systems that are adaptive and responsive (Einhorn et al., 2024); (Al Dhaheri et al., 2024). One of the most frequently identified external factors in the literature is environmental uncertainty, including market uncertainty and rapid technological change. As business conditions become increasingly unstable, SMEs tend to rely not only on traditional financial controls but also on non-financial control indicators, such as customer satisfaction, product innovation, and operational adaptation (Roffia & Dabić, 2024); (Al Dhaheri et al., 2024); (Tam & Tuan., 2021).

In addition to uncertainty, competitive pressure and institutional regulation are also critical drivers of MCS design and implementation in SMEs. When facing high levels of competition, both locally and globally, SMEs are required to become more efficient, productive, and measurable in managing their operations. In this context, MCS serves as a strategic tool for assessing internal efficiency while monitoring the achievement of organizational targets amid competitive market dynamics (Tyler et al., 2024); (Omrani et al., 2024); (Pavlatos, 2021).



Gambar 2. Framework Visual

Figure 2 presents the conceptual framework of the determinants of MCS design and implementation in the context of SMEs. In this framework, MCS design is influenced by two main categories of determinants: internal factors and external factors. Internal factors refer to elements originating within the organization that influence the structure, form, and approach to MCS adopted by the firm. In contrast, external factors refer to dynamics in the organizational environment that influence the need for and configuration of the control system. The framework emphasizes that MCS design in SMEs is neither generic nor a one-size-fits-all approach. Rather, it results from a complex interaction between the firm's internal characteristics and the external context in which it operates, while being adapted to the organization's specific conditions, capabilities, and needs. Therefore, understanding both types of factors is essential for designing control systems that are effective, relevant, and sustainable.

CONCLUSION

This study finds that MCS in SMEs exhibit unique characteristics that distinguish them from those of larger firms. Through a Systematic Literature Review of 37 articles retrieved from the Scopus database, the findings indicate that MCS design in SMEs is not uniform but varies depending on the internal and external factors influencing the organization. Internal factors, including managerial competence, firm size, organizational

structure, and ownership culture, play an important role in determining the types and mechanisms of MCS adopted. Owners with adequate managerial backgrounds and competencies tend to be better equipped to implement structured and performance-oriented control systems. Conversely, resource constraints often lead SMEs to rely on simpler and intuition-based control mechanisms. External factors, such as environmental uncertainty, competitive pressure, and government regulation, also influence the need for responsive and adaptive control systems. In dynamic market environments, SMEs need to develop control systems that do not rely solely on financial indicators but also incorporate non-financial indicators, such as innovation and customer satisfaction, to maintain their relevance and competitiveness. Overall, this study makes a conceptual contribution by developing a framework of the determinants of MCS design and implementation in SMEs. In addition, the findings provide practical implications for business owners in designing and implementing control systems that are appropriate to their internal capacities and the external pressures they face. Future studies may further test the proposed model in specific sectoral or regional contexts using either qualitative or quantitative approaches. For future research, the conceptual model developed in this study could be empirically tested using more applied approaches, particularly within specific sectoral and regional contexts. Qualitative approaches may also be employed to gain deeper insights into the dynamics of MCS implementation in day-to-day business practices, including business owners' perceptions of the effectiveness of the control systems they employ. Furthermore, future research could adopt a mixed-methods approach to provide a more comprehensive understanding of MCS implementation and strengthen the external validity of the proposed model

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