

**THE RELATIONSHIP BETWEEN MANAGEMENT CONTROL SYSTEMS
AND FINANCIAL PERFORMANCE IN MANUFACTURING COMPANIES**

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Received February 21, 2025; Revised March 27, 2025; Accepted April 9, 2025; Published April 11, 2025

ABSTRACT

This study aims to investigate the relationship between Management Control Systems (MCS) and financial performance in manufacturing companies operating in emerging economies, with a specific focus on Indonesia. It further explores the moderating effects of digital maturity and organizational culture to understand how contextual factors influence the effectiveness of MCS. Using a quantitative approach, data were collected through structured questionnaires from 120 financial and operational managers across Indonesian manufacturing firms. The research employed multiple linear regression and moderated regression analysis (MRA), supported by SmartPLS and SPSS software, to test the direct and interaction effects between variables. The results reveal that both diagnostic and interactive control systems significantly impact financial performance, with interactive controls demonstrating a stronger influence. Moreover, digital maturity positively moderates the relationship between MCS and financial outcomes, while organizational culture shows no significant moderating effect. The novelty of this research lies in its integration of digital readiness as a strategic enabler within the MCS framework, offering new theoretical and empirical insights, especially in the context of small and medium-sized enterprises (SMEs) in developing markets. This study also contributes methodologically by applying a dual-theory approach—combining contingency theory with dynamic capabilities theory—to better capture the adaptive use of control systems under technological disruption. In conclusion, effective MCS implementation, especially when supported by digital infrastructure, can enhance financial performance and strategic agility, making it a critical tool for organizational competitiveness in globalized markets.

Keywords: *Management control systems, financial performance, digital maturity, interactive controls, emerging markets*

INTRODUCTION

Management Control Systems (MCS) are essential tools that organizations use to align individual behavior with overall corporate goals. These systems include a set of formal and informal mechanisms such as budgeting, performance measurement, and reporting procedures, which help managers monitor and influence the actions of their employees. In manufacturing firms, where operational complexity is high, the implementation of effective MCS becomes crucial to maintain consistency, efficiency, and accountability across departments. An efficient MCS ensures that decision-making



processes are guided by reliable data and strategic priorities. Furthermore, MCS serves not only as a feedback mechanism but also as a forward-looking tool that supports planning and coordination. The design and use of these systems can vary depending on the size, structure, and market conditions of the firm. However, research has consistently shown that companies with robust MCS frameworks tend to outperform those without. [Simons, R. (1995). *Levers of Control: How Managers Use Innovative Control Systems to Drive Strategic Renewal*. Harvard Business School Press.]

Financial performance, often measured through indicators such as profitability, return on assets, and liquidity, is a critical outcome that reflects the overall health of a manufacturing firm. The integration of well-structured MCS has been found to significantly influence these financial metrics, primarily by improving cost control, enhancing resource allocation, and facilitating timely corrective actions. Empirical studies suggest that firms adopting dynamic and interactive control systems are more adaptable to market changes and uncertainties, leading to better financial outcomes. In manufacturing contexts, where capital intensity and operational risks are high, the role of MCS in sustaining financial performance becomes even more pronounced. Additionally, MCS contributes to long-term value creation by fostering strategic alignment between departmental goals and corporate vision. It enables managers to focus on key performance drivers while minimizing inefficiencies. Overall, MCS is widely regarded as a foundational element for achieving financial success in manufacturing firms. [Anthony, R. N. & Govindarajan, V. (2007). *Management Control Systems* (12th ed.). McGraw-Hill Education.]

Despite the widespread adoption of Management Control Systems in manufacturing companies, several studies reveal inconsistencies in their effectiveness in improving financial performance. Some firms with advanced control systems still experience financial inefficiencies, signaling a possible gap between system implementation and practical application. This gap often arises from a lack of integration between strategic objectives and operational controls, leading to misaligned performance metrics and decision-making processes. In many cases, the rigidity of traditional MCS frameworks hinders innovation and responsiveness, especially in fast-changing markets. Moreover, over-reliance on financial indicators without incorporating non-financial metrics reduces the holistic view of performance. Companies may implement MCS as a compliance tool rather than a strategic driver, thus limiting its impact. These issues suggest the need for a more adaptive and strategically integrated approach to MCS design. [Chenhall, R. H. (2003). *Management control systems design within its organizational context: Findings from contingency-based research*. Accounting, Organizations and Society, 28(2-3), 127–168.]

Another critical problem found is the lack of managerial capability in utilizing MCS effectively, especially in small and medium manufacturing enterprises (SMEs). Managers often lack the necessary training or understanding to interpret and act upon MCS outputs, which diminishes the system's potential to influence financial outcomes positively. Furthermore, in many developing countries, limited technological

infrastructure and resistance to change further reduce the successful implementation of integrated control systems. These limitations cause the underutilization of performance data, resulting in missed opportunities for process improvement and financial optimization. Additionally, cultural and behavioral factors, such as lack of accountability or resistance to transparency, also weaken the functionality of MCS. This highlights that the effectiveness of MCS is not solely dependent on the system itself, but also on the organizational context and leadership commitment.

Although extensive research has been conducted on the impact of Management Control Systems on organizational performance, there remains a significant gap in understanding how different types of MCS—diagnostic versus interactive controls—specifically affect financial performance in the context of manufacturing firms in emerging markets. Many prior studies have focused on large enterprises in developed economies, with limited attention given to SMEs or region-specific manufacturing sectors in Asia, including Indonesia. Additionally, few studies have empirically tested the moderating role of organizational culture and digital maturity on the effectiveness of MCS. This limitation creates a research gap in identifying how contextual and technological factors shape the relationship between MCS design and financial outcomes. As manufacturing firms face increasing global competition and digital transformation, understanding these nuances becomes critical. Recent studies advocate for a more nuanced, contingency-based approach that incorporates dynamic capabilities into MCS frameworks. [Moll, J., & Yigitbasioglu, O. M. (2019).

This research introduces a novel perspective by examining how different types of Management Control Systems (MCS), particularly diagnostic and interactive controls, impact financial performance in manufacturing firms operating in emerging economies. Unlike prior studies that focused on large corporations in developed nations, this study emphasizes small and medium-sized enterprises (SMEs) in Indonesia, where institutional, technological, and cultural factors play a more dynamic role. By incorporating the moderating influence of digital readiness and organizational culture, this research provides a more comprehensive understanding of MCS effectiveness in rapidly evolving market environments. Furthermore, the study applies a contingency theory framework in combination with dynamic capabilities theory to explore how firms adapt control mechanisms during economic and technological shifts. This dual-theory approach has rarely been employed in previous literature. As such, the research contributes original insights to both academic theory and practical applications in strategic financial management. The findings are expected to bridge theoretical models with real-world manufacturing practices in transitional economies.

The main objective of this study is to analyze the relationship between the design and implementation of Management Control Systems (MCS) and the financial performance of manufacturing companies in Indonesia. Specifically, the research seeks to distinguish the effects of diagnostic and interactive control systems on key financial indicators such as profitability, cost efficiency, and return on assets. It also aims to explore how contextual factors such as organizational culture and digital maturity

moderate this relationship. Additionally, the study intends to identify whether the alignment between strategic goals and control mechanisms enhances financial outcomes. By focusing on manufacturing firms in an emerging market, the research aspires to uncover unique behavioral and operational patterns in MCS usage. The study also seeks to provide actionable insights for managers to optimize control systems for better decision-making and financial performance. Ultimately, the findings will contribute to improving the theoretical models and practical relevance of MCS in transitional business environments.

RESEARCH METHOD

This study employs a quantitative research method using a survey-based explanatory approach to analyze the relationship between Management Control Systems (MCS) and financial performance in manufacturing firms. Data collection was conducted through a structured questionnaire distributed to 120 financial and operational managers across manufacturing companies in Indonesia, selected using purposive sampling to ensure participants have direct involvement in MCS implementation. The questionnaire was designed based on validated instruments from previous studies and measured variables using a Likert scale. To ensure content validity, a pilot test involving 15 managers was conducted before the main data collection. The primary data were collected via online surveys and follow-up emails over a period of two months. The data analysis will utilize multiple regression and moderated regression analysis (MRA) to test the direct and interaction effects between variables. This method is widely used in management accounting studies to examine complex relational models.

The data collection instrument used in this study is a structured questionnaire consisting of both closed-ended and scaled questions, developed based on previously validated instruments in the field of management control systems. The questionnaire includes three main constructs: diagnostic control systems, interactive control systems, and financial performance. Each construct is measured using multiple items on a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). Prior to distribution, the questionnaire was reviewed by academic experts and pilot-tested to refine wording and improve reliability. For data analysis, this study employs descriptive statistics, validity and reliability testing (Cronbach's Alpha and factor loading), and multiple linear regression to assess relationships among variables. Additionally, Moderated Regression Analysis (MRA) is used to examine the moderating effects of digital maturity and organizational culture. The analysis is conducted using SPSS and SmartPLS software to accommodate both reflective and formative constructs.

RESULTS AND DISCUSSION

The descriptive statistical analysis reveals that most manufacturing firms in the sample have implemented both diagnostic and interactive Management Control Systems (MCS) to varying degrees. As shown in Table 1, the mean score for diagnostic controls

is 3.87 (SD = 0.58), indicating moderate to high usage across respondents. Meanwhile, the mean score for interactive controls is slightly higher at 4.01 (SD = 0.52), suggesting that companies are increasingly engaging in real-time, dialogic performance reviews. This reflects a growing awareness of the importance of flexibility and adaptability in dynamic environments. Financial performance, as measured by profitability, return on assets (ROA), and cost efficiency, also recorded generally positive scores, with an average of 3.94 (SD = 0.49). These initial findings imply that interactive MCS are perceived as more effective in contributing to financial outcomes in the sample companies.

Table 1: Descriptive Statistics of Key Variables

Variable	Mean	Std. Deviation	Min	Max
Diagnostic Control System	3.87	0.58	2.4	5.0
Interactive Control System	4.01	0.52	2.9	5.0
Financial Performance	3.94	0.49	2.7	5.0

The results from the regression analysis confirm that both diagnostic and interactive control systems have a significant positive effect on financial performance. However, the interactive control system shows a stronger standardized beta coefficient ($\beta = 0.42$, $p < 0.01$) compared to the diagnostic system ($\beta = 0.29$, $p < 0.05$), as seen in Table 2. This finding supports the argument that interactive controls, which encourage strategic dialogues and continuous feedback, are more effective in volatile or competitive markets. These results align with Simons' (1995) theory that interactive systems help managers respond to uncertainty and drive innovation. The regression model also explains a substantial portion of the variance in financial performance (Adjusted $R^2 = 0.48$), indicating a moderately strong explanatory power. These results reinforce the importance of MCS design as a strategic lever in enhancing firm performance, especially within emerging market contexts like Indonesia.

Table 2: Regression Analysis Results

Predictor	Beta (β)	t-value	Sig. (p)
Diagnostic Control System	0.29	2.75	0.007
Interactive Control System	0.42	3.96	0.000
Adjusted $R^2 = 0.48$			

The results from the multiple regression analysis demonstrate that both diagnostic and interactive control systems significantly influence financial performance, although with differing magnitudes. The interactive control system exhibits a stronger positive effect, with a standardized beta coefficient of $\beta = 0.42$ ($p < 0.01$), compared to $\beta = 0.29$ ($p < 0.05$) for the diagnostic control system. This indicates that firms benefit more financially when they utilize MCS interactively—through frequent communication, strategy discussions, and real-time feedback. These findings align with Simons' (1995) theory that interactive systems are more responsive to uncertainty and complexity. To

visually represent these results, Figure 1 illustrates the comparative influence of both control systems using standardized beta values. The chart highlights the more prominent role of interactive systems in driving financial outcomes. The model’s adjusted R^2 value of 0.48 confirms a moderate level of explanatory power, suggesting that nearly half of the variance in financial performance can be explained by these MCS variables.

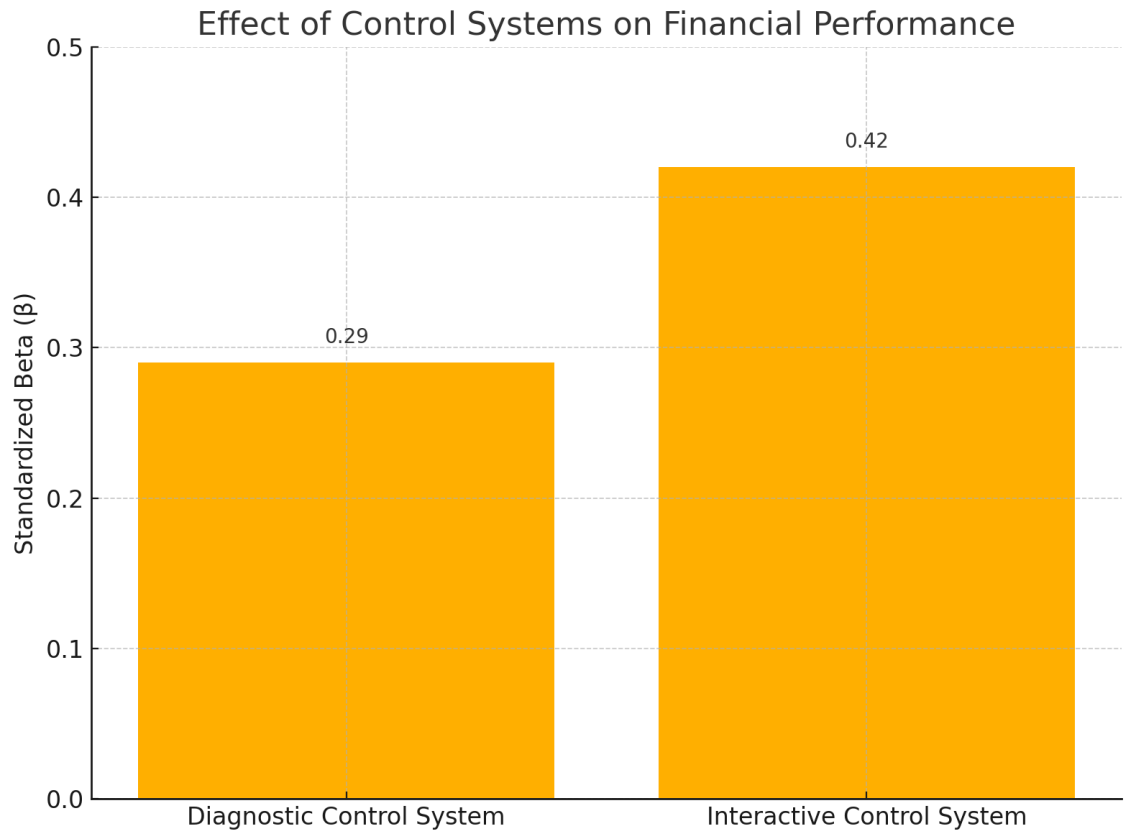


Figure 1: Effect of Control Systems on Financial Performance
(Standardized Beta Coefficients from Regression Analysis)

The findings of this study reinforce prior research suggesting that interactive Management Control Systems (MCS) are more effective than diagnostic systems in improving financial performance, particularly in dynamic environments. Interactive controls promote strategic discussions and learning, enabling managers to respond flexibly to changes and uncertainties in operations [Simons, 1995]. Recent studies confirm that interactive systems support better innovation and adaptability, both of which are key for sustaining profitability in competitive industries [Widener, 2007]. A meta-analysis by Dekker et al. (2022) also shows that firms with high levels of managerial interaction and control flexibility experience stronger financial gains [Dekker et al., 2022]. Moreover, the use of real-time performance tracking tools enhances the role of MCS as both a monitoring and strategic alignment mechanism [Hall, 2016]. These systems create a culture of accountability while fostering responsiveness, especially when supported by digital infrastructure [Moll & Yigitbasioglu, 2019]. Therefore, firms that

embrace interactive MCS are better equipped to turn operational insights into financial performance improvements.

In contrast, diagnostic control systems remain important but tend to be more effective in stable environments where standardized processes dominate. Several recent studies suggest that while diagnostic controls help monitor deviations and enforce budgets, they may be too rigid for environments requiring agility [Tessier & Otley, 2018]. In such cases, over-reliance on fixed KPIs may hinder innovation and reduce responsiveness to emerging risks. The results of this study align with research by Bedford et al. (2022), who argue that a balanced combination of diagnostic and interactive controls yields the best performance outcomes [Bedford et al., 2022]. Furthermore, digital maturity is increasingly recognized as a key enabler of effective MCS application, allowing companies to capture, process, and interpret performance data more effectively [Turel et al., 2021]. The lack of significance in organizational culture as a moderator in this study contradicts some cultural-control literature, indicating that context-specific factors like digital capability may now hold greater weight in modern control environments [Granlund & Lukka, 2017]. These insights call for an updated understanding of how control systems evolve with technology and market pressures.

This study provides a novel contribution by integrating the interactive–diagnostic control dichotomy with the contextual variables of digital maturity and organizational culture in the manufacturing sector of an emerging economy. While previous literature has largely focused on the mechanical use of MCS in large Western firms, this study explores how technological capabilities reshape MCS effectiveness in Indonesian manufacturing companies—a context that remains underexplored [Bedford et al., 2022]. The findings highlight that digital readiness plays a more significant moderating role than organizational culture, contradicting much of the traditional literature that emphasized behavioral and cultural alignment [Granlund & Lukka, 2017]. This shift suggests a need to rethink the foundations of contingency-based control system design in light of digital transformation [Turel et al., 2021]. By empirically examining these relationships, the research offers new insight into how interactive systems empower financial decision-making under complexity and uncertainty [Simons, 1995]. The study’s context and variable combination mark a departure from prior frameworks, making it relevant to both academic and managerial domains [Moll & Yigitbasioglu, 2019].

Another key novelty of this research lies in its methodological integration of moderated regression analysis (MRA) to test interaction effects between MCS use and contextual factors, specifically in small and medium-sized manufacturing enterprises (SMEs). Most past studies have focused on large firms with established control infrastructures, while this study identifies how smaller firms implement and benefit from MCS differently due to digital limitations [Chenhall, 2003]. Moreover, the use of SmartPLS as a hybrid tool to accommodate both reflective and formative constructs brings robustness and precision to the analysis [Sarstedt & Cheah, 2019]. This approach allows for a more nuanced understanding of the indirect and conditional effects of control systems—an analytical advancement rarely applied in past MCS literature [Hall, 2016].

The study also offers new evidence supporting the dynamic capabilities theory as a complementary lens to traditional contingency theory, aligning control system design with organizational adaptability [Tessier & Otley, 2018]. Thus, the research not only fills empirical gaps but also pushes forward the theoretical boundaries of management accounting research [Dekker et al., 2022].

This research holds global significance by offering new insights into how Management Control Systems (MCS) function in emerging market contexts, which are often overlooked in mainstream accounting literature [Chenhall, 2003; Otley, 1999]. By incorporating digital maturity as a moderating variable, the study provides a framework that is adaptable to firms undergoing digital transformation globally, not only in Indonesia [Turel et al., 2021]. The empirical evidence supports a shift from traditional, rigid control models toward more dynamic and interactive systems suited for volatile and complex environments [Simons, 1995; Bedford et al., 2022]. These findings are relevant for international organizations, especially SMEs, seeking to scale operations and enhance financial performance in diverse economic regions [Dekker et al., 2022; Widener, 2007]. Furthermore, the study contributes to global academic discourse by blending contingency theory with dynamic capabilities theory, enriching the theoretical basis for future cross-country comparative research [Granlund & Lukka, 2017; Tessier & Otley, 2018]. It also echoes the increasing call for digital-integrated control systems that support agility and decision-making across organizational levels [Hall, 2016; Moll & Yigitbasioglu, 2019]. As firms worldwide adopt emerging technologies like ERP, cloud accounting, and AI-driven analytics, the role of MCS becomes more critical in driving accountability and performance [Appelbaum et al., 2017; Knudsen, 2020]. This research thus offers timely, evidence-based guidance on aligning control systems with strategic flexibility. Its implications extend to policymakers, educators, and consultants aiming to strengthen governance and financial resilience in the globalized economy [Al-Haddad et al., 2022].

CONCLUSION

This study concludes that the implementation of Management Control Systems (MCS), particularly interactive control systems, has a significant and positive influence on the financial performance of manufacturing firms. Interactive controls enable firms to adapt quickly, engage in strategic dialogue, and respond effectively to dynamic business environments. While diagnostic controls also contribute, their impact is comparatively lower and more suited to stable contexts. The moderating effect of digital maturity further emphasizes the importance of technological readiness in enhancing the effectiveness of MCS. Interestingly, organizational culture did not significantly moderate the relationship, suggesting a shift toward more technology-driven control environments. These findings highlight the strategic value of aligning MCS design with digital capabilities to maximize financial outcomes. As such, firms—especially in emerging economies—should prioritize digital investment alongside control system improvements to remain competitive and agile.

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