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The relationship between management accounting information systems, competitive advantage and performance: The moderating role of digital transformation

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Abstract

This study aims to clarify the impact of management accounting information systems (MAIS) on competitive advantage (CA) and firm performance (FP), as well as examine the moderating role of digital transformation (DT) in this relationship. Data were collected through a structured questionnaire administered to 145 senior and middle managers at Vietnamese enterprises. The research model was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS software. Research results show that MAIS has a positive and significant impact on both CA and FP. CA also mediates the relationship between MAIS and FP. In addition, DT has a statistically significant moderating effect only on the relationship between MAIS and CA. This study makes a new contribution to the academic literature by clarifying the role of management accounting information systems in enhancing competitive advantage and business performance, especially in the context of enterprises in Vietnam. The findings not only provide practical suggestions on integrating digital transformation with internal information systems but can also be considered a useful reference for managers in enhancing strategic decision-making and improving organizational performance.

Keywords: Competitive advantage, digital transformation, firm performance, management accounting information system.

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1. Introduction

In the context of a volatile business environment, especially in the digital economy era, businesses are facing many challenges. Finding, establishing, and maintaining competitive advantages while optimizing business performance (FP) have become strategic goals and sustainable development orientations for every business. The management accounting information system (MAIS) forms a framework that provides economic, financial, and non-financial data to managers, facilitating planning, control, and decision-making processes within an organization. Competitive advantage (CA) refers to

a firm's ability to create superior value for customers relative to its competitors, achieved through reducing costs (cost advantage) or providing a distinct product/service (differentiation advantage). Enterprises need to have a high competitive advantage to outperform their competitors in a dynamic competitive market and must make innovation efforts to maintain that advantage [1, 2]. To achieve these strategic goals, information plays a central role as a core management tool, providing accurate, timely, and useful data for managers' decision-making processes. Enterprises not only build effective business strategies but also have to make the most of information technology advances, especially MAIS. Many previous studies have shown that MAIS plays an important role in providing accurate and timely information to managers, helping them make strategic decisions on costs, risk management, and optimization of operating processes [3-5]. This system not only supports businesses in controlling finances but also helps to differentiate in providing products and services, thereby bringing a competitive advantage [6]. Digital transformation is not only about integrating technology into processes but also about changing the way businesses organize and operate, helping them adapt quickly to market fluctuations. Applying digital technologies to strengthen cybersecurity and implementing a drastic digital transformation strategy can lead to better performance than competitors in terms of profitability, innovation, and customer satisfaction [7]. Although there have been many studies on MAIS in relation to CA and FP, there is still quite limited research. The contribution of this study is to supplement the existing literature related to management accounting in general and MAIS in particular, specifically by using the underlying theoretical frameworks such as the resource-based view (RBV) and dynamic capabilities theory to shed light on the relationship between MAIS, CA, and FP. Furthermore, the study also examines whether the moderating role of DT can change the impact level of MAIS on CA, thereby providing useful managerial implications to help business administrators orient their development strategies in the context of today's fiercely competitive digital age.

2. Literature Review

2.1. Theories

The Resource-Based View (RBV) theory argues that resources provide a competitive advantage to a business when they are valuable, rare, difficult to imitate, and non-substitutable [8]. Based on this theory, a business's performance can be explained by the extent to which the business uses information to support and improve its core competencies [9]. Applying RBV, it can be understood that if MAIS is designed flexibly and in line with strategy, it can become an important intangible resource, supporting managers in decision-making and thereby enhancing competitiveness. At the same time, MAIS is also a tool for building a low-cost strategy, product differentiation, or quick response to the market - the core elements of competitive advantage according to Porter's perspective.

Dynamic capabilities theory extends the RBV perspective by emphasizing that in order to adapt and thrive in a rapidly changing business environment, businesses need to be able to restructure and innovate their internal resources [10]. Applying this theory in the context of digital transformation, the ability to flexibly exploit data from MAIS and integrate with digital platforms is considered a key factor in promoting competitive advantage and operational efficiency.

2.2. Hypotheses

The match between information and decision-makers' needs improves decision quality and firm performance [11]. Management accounting information systems (MAIS) play a vital role in providing detailed, timely, and relevant information on costs, the performance of each department, as well as profitability by customer or product line. Based on this information, managers will be supported in planning and controlling activities, helping them solve problems [5]. Furthermore, the characteristics of management accounting information, such as scope, timeliness, level of aggregation, and level of integration, have a positive influence on the ability to perceive environmental uncertainty and effectively support the decision-making process [12]. The relationship between MAIS and operational performance (FP) has been extensively studied in various types of businesses, with almost all results showing MAIS as a key driver of FP. Accurate and timely information provided by effective MAIS leads to improved decision-making and performance [3, 4, 13]. At the same time, the connection of management accounting information also plays a role in promoting the level of organizational learning, thereby improving operational efficiency [14]. The above arguments support us in proposing the following hypothesis:

H_1: MAIS has a positive impact on FP.

The process of socio-economic development along with increasing competition, enterprises face many risks and uncertainties, this requires enterprises to make appropriate responses, in which the design and use of MAIS is necessary [15] Management accounting information can help evaluate the attributes, prices and costs of substitute products in the market, MAIS is important to enable the optimization of managers' decision-making processes [6]. Furthermore, the use of management accounting information increases strategic adaptability and competitiveness [16]. Based on the RBV theory, as an information system for decision making, planning and control, MAIS is a resource that not only provides financial information but also integrates non-financial information, comprehensively reflecting production and business activities, thereby supporting managers to develop competitive capacity. The above arguments support us in proposing the following hypothesis:

H_2: MAIS has a positive impact on CA

Competitive advantage plays a core role in determining the performance of a business in a volatile business environment. Choosing a low-cost or differentiation strategy will enable a company to maintain profits above the industry average, either by optimizing operating costs or creating superior value for customers [1]. Companies with strong business analytics capabilities have increased resource coordination capabilities and are better able to excel in the circular economy, leading to improved organizational performance in building sustainable competitive advantage [17]. Having a competitive advantage

typically indicates that an organization can have lower prices, higher quality, greater reliability, and shorter delivery times when compared to its competitors. These capabilities will enhance the overall performance of the organization. Competitive advantage becomes a theoretically meaningful construct for strategy research, thereby improving efficiency [18]. Besides, competitive advantage plays an important role for small and medium enterprises to increase their performance [19]. From the above arguments, the following hypothesis is proposed:

H_3: CA has a positive impact on FP

The development of MAIS is closely linked to strategic decision making and operational process optimization, thereby indirectly creating competitive advantages and improving operational efficiency [20]. Effective MAIS improves the quality of strategic information, supports pricing decisions, controls costs and optimizes resource allocation [12]. However, these benefits only become practical when applied to build superior core competencies, thereby forming competitive advantages in terms of cost, product quality, market response speed or innovation. In the same vein, MAIS provides relevant information to senior managers, helping businesses create flexible responses in competitive environments, thereby improving performance through competitive capabilities [21]. The mediating role of CA is also confirmed in the relationship between financial capacity and performance [22]. The above arguments support our hypothesis:

H_4: There is an intermediary role of CA in the relationship between MAIS and FP.

Digital transformation is a unique dynamic capability that can create better performance, leading to a competitive advantage [23]. The level of application of information technology, especially ERP solutions and big data analysis, enhances the effectiveness of management accounting systems in supporting competitive strategies [24]. Additionally, businesses with a higher level of digitalization often make better use of management accounting tools, thanks to their ability to integrate real-time information and support rapid decision making. The role of cybersecurity and digital transformation together to optimize competitive advantage through effective implementation of strategic management accounting activities [7]. Especially in the banking sector, digital transformation also plays an important role in increasing the operational efficiency of banks to enhance competitive advantages and achieve a stable financial situation [25]. Based on the above arguments, digital transformation acts as a moderating factor, meaning that when the level of digital transformation is high, the positive impact of MAIS on competitive advantage will be stronger. The arguments support us in making the hypothesis below:

H_5: There is a moderating role of DT in the relationship between MAIS and CA.

3. Research Methodology

The authors conducted a normality test to verify that the data met the basic assumptions of multivariate analysis. The results of the Kolmogorov-Smirnov (K-S) test indicated that the observed variables did not follow a normal distribution. Therefore, the study employed the PLS-SEM method due to its key advantages: (1) it is suitable for non-normally distributed data; (2) it performs well with small sample sizes; and (3) it is appropriate for exploratory research models [26]. The research model was analyzed and tested using SmartPLS version 3.2.9.

The study examines both the direct impact of Management Accounting Information Systems (MAIS), a second-order construct measured through scope, timeliness, aggregation, and integration and its indirect impact on firm performance (FP) via competitive advantage (CA), while also considering the moderating role of digital transformation (DT).

To analyze the proposed relationships, the study employs the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach. Following the guidelines of Hair et al. [26], the analysis consists of two main stages: the measurement model and the structural model. The measurement model is used to evaluate the reliability of individual indicators and the internal consistency of constructs, whereas the structural model assesses convergent validity and discriminant validity to determine the robustness of the hypothesized relationships.

The study was conducted at enterprises in Ho Chi Minh City. In each enterprise, the research team selected one survey participant, an individual who plays a decisive role, oversees, and directly engages in the operation of the accounting information system, particularly the Management Accounting Information System (MAIS). The survey respondents included senior managers (directors, deputy directors) and middle managers (heads/deputy heads of accounting, finance, and treasury departments) at Vietnamese enterprises.

The data collection process was carried out online via Google Forms. A total of 148 survey forms were returned, of which 145 were valid and used for analysis. According to Hair et al. [26], when using the PLS-SEM model, the minimum sample size required is 10 times the largest number of paths leading to a dependent variable in the structural model. With this research model, the largest number of paths is 6, so the minimum sample size is 60 observations. Therefore, 145 valid responses are completely suitable to ensure the reliability of data analysis in this study.

The paper uses a 7-point Likert scale, in which the variable scale for MAIS is adapted from inherited from the research of Chenhall and Morris [12] and Agbejule [27]. The scale for CA is based on the studies by Abeysekara et al. [28] and Li et al. [29]. The FP scale is inherited from the research of Calantone et al. [30] and Jaworski and Kohli [31]. Lastly, the scale for DT is adapted from the studies of Chotia et al. [7] and Singh et al. [32].

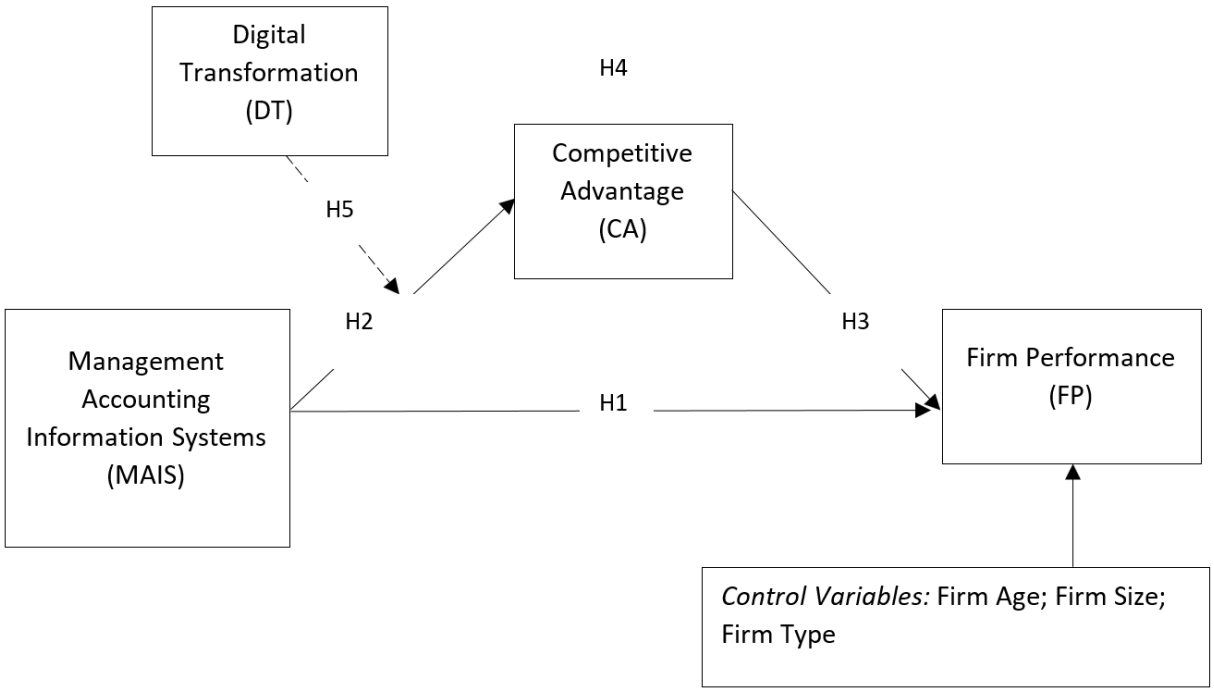

Figure 1.
Overview of the theoretical framework.

4. Results and Discussion

4.1. Measurement Model

4.1.1. Assessment of the measurement model for first-order latent constructs

The measurement model, also known as the outer model, was evaluated in terms of reliability and validity. Regarding item reliability, all observed variables had factor loadings greater than 0.7, ranging from 0.735 to 0.908 (see Table 1), which exceeds the recommended threshold of 0.708 by Hair et al. [26]. These results demonstrate that each item is well explained by its corresponding latent construct, confirming sufficient item reliability.

Table 1.
Reliability and convergent reliability tests of each variable.

Variables	Items	Outer loading	Cronbach's Alpha	Composite Reliability – CR	Average Variance Extracted - AVE	VIF
Firm Performance	FP_1	0.862	0.893	0.921	0.7	3.255
	FP_2	0.8				1.964
	FP_3	0.791				2.041
	FP_4	0.861				2.734
	FP_5	0.866				2.732
Competitive Advantage	CA_1	0.845	0.872	0.903	0.609	2.813
	CA_2	0.707				2
	CA_3	0.844				2.232
	CA_4	0.705				1.827
	CA_5	0.778				2.019
	CA_6	0.788				1.937
Digital Transformation	DT_1	0.748	0.735	0.849	0.652	1.166
	DT_2	0.842				2.368
	DT_3	0.829				2.28
Scope	SC_1	0.893	0.908	0.935	0.783	3.375
	SC_2	0.897				3.202
	SC_3	0.853				2.332
	SC_4	0.897				2.938
Timeliness	TL_1	0.867	0.89	0.924	0.753	2.566
	TL_2	0.851				2.281
	TL_3	0.879				3.062
	TL_4	0.873				2.834
Integration	IN_1	0.865	0.896	0.928	0.763	2.364
	IN_2	0.892				2.811
	IN_3	0.878				2.402

Variables	Items	Outer loading	Cronbach's Alpha	Composite Reliability – CR	Average Variance Extracted - AVE	VIF
	IN_4	0.857				2.447
Aggregation	AGG_1	0.867	0.826	0.896	0.742	1.902
	AGG_1	0.818				1.721
	AGG_2	0.897				2.189

As shown in Table 1, Cronbach's Alpha values ranged from 0.735 to 0.908, and composite reliability (CR) values ranged from 0.849 to 0.935. All values are above the minimum thresholds of 0.7 and 0.8, respectively, indicating that the internal consistency reliability of the constructs is acceptable and stable. In terms of convergent validity, the average variance extracted (AVE) values ranged from 0.609 to 0.783, exceeding the 0.5 threshold recommended by Hair et al. [26]. This indicates that more than 50% of the variance in the observed indicators is captured by their respective latent constructs, confirming strong convergent validity based on the criterion proposed by Fornell and Larcker [33].

Overall, the above results confirm that all scales in the study achieved the necessary reliability and convergent validity. Therefore, these scales can be used for the next analysis steps in the PLS-SEM model to test the research hypotheses.

4.1.2. Assessment of the Measurement Model for First-Order Latent Constructs

The MAIS variable is modeled as a formative second-order construct, comprising four sub-components*: Aggregation, Integration, Scope, and Timeliness*. To evaluate the measurement model of this second-order construct, the study employed the two-stage approach in PLS-SEM. In the first stage, factor scores for the four first-order components were extracted. In the second stage, these scores were used as indicators to represent the second-order construct (MAIS), which was then assessed through structural modeling. To evaluate the contribution of each component to the overall conceptual framework, the study conducted bootstrapping with 5,000 resamples to test the statistical significance of the indicator weights. The results presented in Table 2 indicate that all four components have statistically significant weights at the 5% level (p-value < 0.05). The variation in the sign of the weight for Aggregation does not necessarily imply a negative impact; rather, it should be interpreted within the theoretical context and the structure of the overall model. In formative models, weights primarily represent the relative contribution of each component rather than indicating a causal direction of effect. In addition, the multicollinearity test results show that all Variance Inflation Factor (VIF) values range from 1.668 to 1.772, which is well below the commonly accepted threshold of 5 [26]. This confirms that there is no serious multicollinearity among the components. The above results show that MAIS is measured appropriately, ensuring statistical significance and linear independence of the four component variables, thereby ensuring the reliability and validity of the second-order variable structure in the PLS-SEM model [26].

Table 2.
Second-order construct component analysis – MAIS.

Path	Weight (O)	Standard Deviation - STDEV	T Statistics	P Values	VIF
Aggregation -> MAIS	-0.225	0.093	2.421	0.016	1.668
Integration -> MAIS	0.461	0.094	4.918	0.000	1.754
Scope -> MAIS	0.488	0.109	4.457	0.000	1.772
Timeliness-> MAIS	0.398	0.096	4.136	0.000	1.732

4.2. Structural Model

We used R^2 and Q^2 values to assess the explanatory power and predictive relevance of the model. As shown in Table 3, the R^2 values range from 0.613 to 0.748, indicating that the PLS-SEM model demonstrates a good level of explanatory power and can reliably account for the relationships examined in the study [34]. Furthermore, using the blindfolding procedure, the Q^2 values were calculated and found to be greater than zero (ranging from 0.408 to 0.427), which confirms the model's predictive relevance [35].

Table 3.
Summary of R^2 and Q^2 Values.

	R^2	Q^2
Competitive Advantage	0.748	0.427
Firm Performance	0.613	0.408

4.3. Direct Effects Analysis

The analysis of direct effects was conducted by examining path coefficients and their statistical significance. The results presented in Table 4 indicate that the key relationships in the model are all supported with high statistical significance ($p < 0.001$). Specifically, digital transformation (DT) and management accounting information systems (MAIS) both have strong positive effects on competitive advantage (CA), with path coefficients of 0.514 ($p < 0.001$) and 0.410 ($p < 0.001$), respectively. In particular, the interaction between these two factors (Mo_DT*MAIS) exhibits a significant negative moderating effect (−0.232, $p < 0.001$), indicating that management accounting information systems tend to moderate the impact of digital transformation on competitive advantage. In terms of the effect on corporate performance (FP), both competitive advantage (0.448, $p < 0.001$) and management accounting information systems (0.327, $p = 0.002$) have positive

impacts. Meanwhile, control variables including company size (0.113, p = 0.071), company age (0.002, p = 0.979), and industry (0.013, p = 0.881) do not show significant effects on the research results.

Table 4.
Summary of Hypothesis Testing Results.

Hypothesis	Path coefficient	Std. Dev.	T-statistics	P-value	95% CI (Lower)	95% CI (Upper)	Result
DT -> CA	0.514	0.067	7.626	< 0.001	0.38	0.645	Supported
MAIS → CA	0.41	0.073	5.626	< 0.001	0.264	0.547	Supported
Mo_DT*MAIS → CA	-0.232	0.037	6.186	< 0.001	-0.291	-0.154	Supported
CA→ FP	0.448	0.099	4.518	< 0.001	0.243	0.634	Supported
MAIS → FP	0.327	0.107	3.045	0.002	0.103	0.525	Supported
Firm size → FP	0.113	0.063	1.807	0.071	-0.006	0.237	Not Supported
Firm age → FP	0.002	0.064	0.027	0.979	-0.133	0.117	Not Supported
Industry → FP	0.013	0.083	0.15	0.881	-0.14	0.185	Not Supported

4.4. Mediation Effects Analysis

We continue to examine the mediating effect of competitive advantage (CA) in the relationship between management accounting information systems, digital transformation (DT), and business performance through the bootstrapping method (5,000 samples). The results show that competitive advantage plays an important mediating role. Specifically, digital transformation exhibits a positive and statistically significant indirect effect on business performance through competitive advantage, with a path coefficient of 0.23 (p < 0.001). Similarly, management accounting information systems also show a significant indirect effect, with a coefficient of 0.184 (p < 0.001). In particular, the interaction between digital transformation and management accounting information systems has an indirect effect (-0.104, p = 0.001), reflecting the negative moderating effect of management accounting information systems on the relationship between digital transformation and performance, indicating the complexity of the interaction between technology and management factors in the process of creating corporate value. These findings emphasize the importance of developing competitive advantage as a central mechanism to make technology investments more effective for corporate performance.

Table 5.
Results of Indirect Effects Analysis in the Structural Model*.

Hypothesis	Effect Coefficient	Standard Deviation	T-statistics	P-value	Result
DT → CA → FP	0.23	0.061	3.751	0.000	Supported
MAIS →CA → FP	0.184	0.051	3.623	0.000	Supported
Mo_DT*MAIS →CA→FP	-0.104	0.032	3.217	0.001	Supported

Note: * Total indirect effect equals the specific indirect effect as only one path exists per relationship.

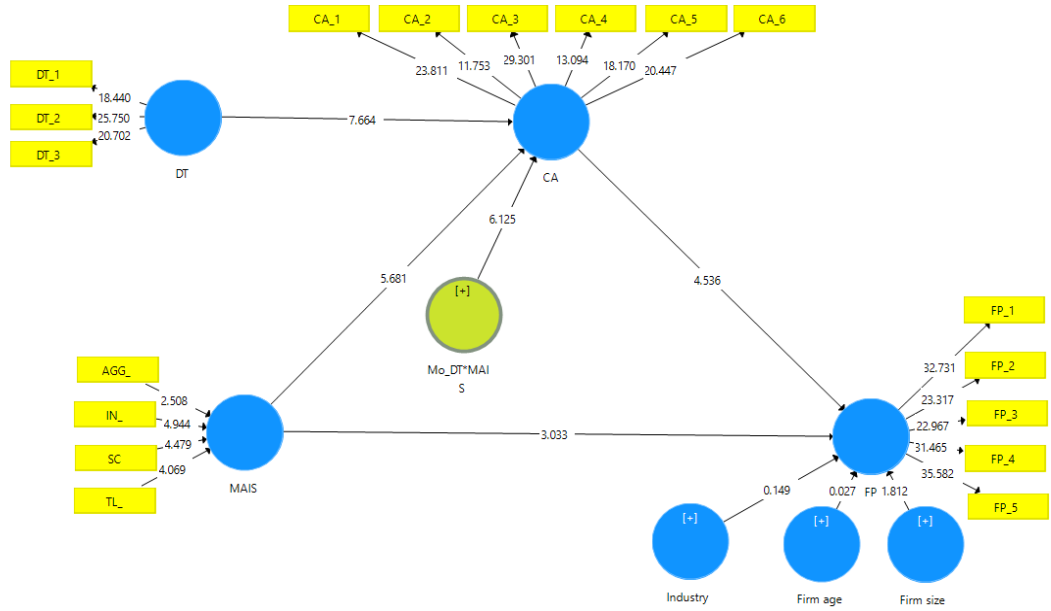

Figure 2.
The result of the research mode.

4.5. Moderation Effects Analysis

Table 4 shows that DT positively affects the relationship between MAIS and CA. In the simple slope diagram in Figure 2, the X-axis represents the independent variable - MAIS, and the Y-axis represents the dependent variable - CA. The green, red, and blue lines represent high, medium, and low levels of the moderator variable, respectively. The simple slope diagram shows that all lines are upward sloping, meaning that MAIS always has a positive effect on CA. However, the slope is flatter when DT is high (green < red < blue), suggesting that the positive effect of MAIS on CA is weakened at higher levels of digital transformation. This implies that MAIS plays a more significant role in enhancing competitive advantage when digital transformation is at a low level. Moreover, the negative indirect effect from Mo_DT × MAIS → CA → FP (−0.104, $p < 0.01$) further confirms the weakening of the impact chain from MAIS to firm performance through competitive advantage as digital transformation increases (Table 5).

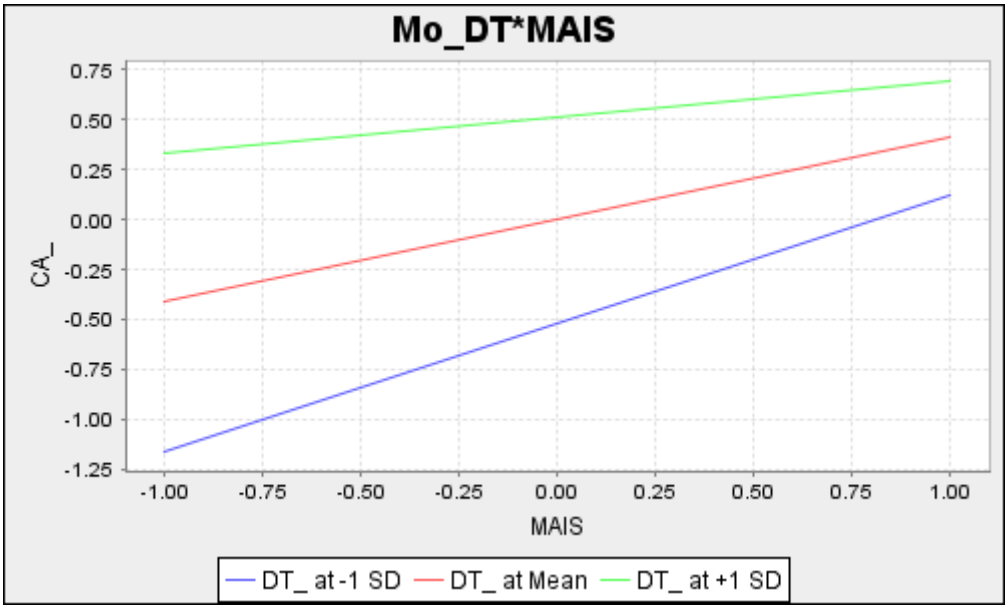

Figure 3.
Moderation Effect Plot.

5. Discussion

The results of the PLS-SEM model analysis shed light on the roles of MAIS and DT in enhancing CA and FP. First, the study confirmed that both MAIS and DT have a positive impact on competitive advantage, suggesting that when firms invest in modern accounting information systems and implement digital transformation, they tend to improve their competitiveness in the market. These findings are consistent with previous studies on the role of information technology in establishing CA for firms [4, 13]. CA is identified as an important mediator in the relationship between MAIS and FP. The results show that CA is not only a dependent variable influenced by MAIS and DT, but also plays a bridging role in transforming these resources into practical outcomes in firm operations. This reinforces hypothesis H4 and is consistent with the resource-based view theory (RBV), which emphasizes the role of internal capabilities such as information systems and digital transformation in improving performance [20, 22].

Another notable finding of this study is the moderating role of DT. The results indicate that higher levels of digital transformation tend to weaken the impact of MAIS on CA. This is evidenced in Figure 2, where the slope of the MAIS–CA curve decreases as DT increases. The result suggests that in highly digital environments, the strategic role of traditional information systems may diminish if not effectively integrated with new digital platforms [7, 23]. The indirect moderating effect of DT is also confirmed, as the DT × MAIS interaction impacts FP through CA. This indicates that DT not only directly influences CA but also shapes how internal information resources translate into performance outcomes. Thus, implementing digital transformation without integrating existing systems may lead to duplication, resource waste, or reduced overall effectiveness.

In addition, control variables such as firm size, age, and industry did not have significant effects on FP. Overall, the study highlights the role of competitive advantage as a key mediating mechanism and reveals the complex moderating effect of digital transformation on the relationship between management accounting systems and performance. These findings are meaningful both theoretically and practically, particularly in the context of businesses advancing digitalization while needing to maintain alignment with existing information systems.

6. Conclusion and Management Implications

6.1. Conclusion

The PLS-SEM analysis shows that both MAIS and DT positively influence CA, thereby enhancing FP. DT not only acts as an independent driver of strategic effectiveness but also moderates the relationship between MAIS and CA. However, this moderating effect is attenuated, suggesting that as digital transformation intensifies, the influence of MAIS on CA may

weaken. This implies that implementing digital technologies without proper integration with traditional management accounting systems may reduce the overall effectiveness in generating business value.

6.2. Management implications

Based on the research findings, several important implications are proposed for business administrators as follows:

First, enterprises should clearly recognize the dual role of management accounting information systems not only in supporting strategic decision-making but also in directly enhancing operational performance. Therefore, it is essential to invest in upgrading, integrating, and standardizing these systems, particularly for small and medium-sized enterprises undergoing digital transformation.

Second, digital transformation serves as a key driver of competitive advantage, but its effectiveness is only realized when it is closely integrated with existing management systems. Administrators should avoid a fragmented or superficial approach to digital transformation and instead treat it as a comprehensive strategy aligned with the enterprise's existing information infrastructure.

Third, the negative moderating effect of digital transformation indicates that, without synchronization, digital initiatives may overshadow the role of traditional accounting systems, potentially leading to information conflicts or redundant functionalities. Hence, businesses should develop a digital transformation roadmap that includes employee training, process optimization, and flexible adaptation of accounting systems.

Finally, in a rapidly changing and competitive environment, competitive advantage no longer stems solely from financial resources or firm size, but increasingly from the ability to leverage information and adapt to technological change. Therefore, business leaders should prioritize building digital capabilities and information management as core elements of their growth strategies.

References

[1] M. E. Porter, "Technology and competitive advantage," *Journal of Business Strategy*, vol. 5, no. 3, pp. 60-78, 1985. https://doi.org/10.1108/eb039075

[2] M. E. Porter, "Competitive advantage, agglomeration economies, and regional policy," *International Regional Science Review*, vol. 19, no. 1-2, pp. 85-90, 1996. https://doi.org/10.1177/016001769601900208

[3] V. K. Chong and K. M. Chong, "Strategic choices, environmental uncertainty and SBU performance: a note on the intervening role of management accounting systems," *Accounting and Business Research*, vol. 27, no. 4, pp. 268-276, 1997. https://doi.org/10.1080/00014788.1997.9729553

[4] N. P. Nguyen, "Performance implication of market orientation and use of management accounting systems: The moderating role of accountants' participation in strategic decision making," *Journal of Asian Business and Economic Studies*, vol. 25, no. 1, pp. 33-49, 2018. https://doi.org/10.1108/JABES-04-2018-0005

[5] T. Soobaroyen and B. Poorundersing, "The effectiveness of management accounting systems: Evidence from functional managers in a developing country," *Managerial Auditing Journal*, vol. 23, no. 2, pp. 187-219, 2008. https://doi.org/10.1108/02686900810839866

[6] L. L. Santos, C. Gomes, and N. Arroteia, "Management accounting practices in the Portuguese lodging industry," *Journal of Modern Accounting and Auditing*, vol. 8, no. 1, pp. 1-14, 2012.

[7] V. Chotia, K. Khoualdi, L. Broccardo, and M. Z. Yaqub, "The role of cyber security and digital transformation in gaining competitive advantage through Strategic Management Accounting," *Technology in Society*, vol. 81, p. 102851, 2025. https://doi.org/10.1016/j.techsoc.2025.102851

[8] J. Barney, "Firm resources and sustained competitive advantage," *Journal of Management*, vol. 17, no. 1, pp. 99-120, 1991. https://doi.org/10.1177/014920639101700108

[9] T. Ravichandran, C. Lertwongsatien, and C. Lertwongsatien, "Effect of information systems resources and capabilities on firm performance: A resource-based perspective," *Journal of Management Information Systems*, vol. 21, no. 4, pp. 237-276, 2005. https://doi.org/10.1080/07421222.2005.11045820

[10] D. J. Teece, G. Pisano, and A. Shuen, "Dynamic capabilities and strategic management," *Strategic Management Journal*, vol. 18, no. 7, pp. 509-533, 1997.

[11] E. A. Gerloff, N. K. Muir, and W. D. Bodensteiner, "Three components of perceived environmental uncertainty: An exploratory analysis of the effects of aggregation," *Journal of Management*, vol. 17, no. 4, pp. 749-768, 1991. https://doi.org/10.1177/014920639101700408

[12] R. H. Chenhall and D. Morris, "The impact of structure, environment, and interdependence on the perceived usefulness of management accounting systems," *Accounting Review*, vol. 61, no. 1, pp. 16-35, 1986.

[13] M. M. Abu Afifa and I. Saleh, "Management accounting systems effectiveness, perceived environmental uncertainty and companies' performance: the case of Jordanian companies," *International Journal of Organizational Analysis*, vol. 30, no. 2, pp. 259-288, 2022. https://doi.org/10.1108/IJOA-07-2020-2288

[14] J.-m. Choe, "Impact of management accounting information and AMT on organizational performance," *Journal of Information Technology*, vol. 19, no. 3, pp. 203-214, 2004. https://doi.org/10.1057/palgrave.jit.2000013

[15] E. K. Laitinen, "A portfolio approach to develop a theory of future management accounting systems," *EuroMed Journal of Business*, vol. 3, no. 1, pp. 23-37, 2008. https://doi.org/10.1108/14502190810873803

[16] R. Ghasemi, N. Azmi Mohamad, M. Karami, N. Hafiz Bajuri, and E. Asgharizade, "The mediating effect of management accounting system on the relationship between competition and managerial performance," *International Journal of Accounting and Information Management*, vol. 24, no. 3, pp. 272-295, 2016. https://doi.org/10.1108/IJAIM-05-2015-0030

[17] E. Kristoffersen, P. Mikalef, F. Blomsma, and J. Li, "The effects of business analytics capability on circular economy implementation, resource orchestration capability, and firm performance," *International Journal of Production Economics*, vol. 239, p. 108205, 2021. https://doi.org/10.1016/j.ijpe.2021.108205

[18] H. Ma, "Competitive advantage and firm performance," *Competitiveness Review: An International Business Journal*, vol. 10, no. 2, pp. 15-32, 2000. https://doi.org/10.1108/eb046396

[19] A. A. Eniola and H. Ektebang, "SME firms performance in Nigeria: Competitive advantage and its impact," *International Journal of Research Studies in Management*, vol. 3, no. 2, pp. 75-86, 2014. https://doi.org/10.5861/ijrsm.2014.854

[20] M. Al-Omiri and C. Drury, "A survey of factors influencing the choice of product costing systems in UK organizations," *Management Accounting Research*, vol. 18, no. 4, pp. 399-424, 2007. https://doi.org/10.1016/j.mar.2007.02.002

[21] L. Mia and B. Clarke, "Market competition, management accounting systems and business unit performance," *Management Accounting Research*, vol. 10, no. 2, pp. 137-158, 1999. https://doi.org/10.1006/mare.1998.0097

[22] S. Z. Khan, Q. Yang, and A. Waheed, "Investment in intangible resources and capabilities spurs sustainable competitive advantage and firm performance," *Corporate Social Responsibility and Environmental Management*, vol. 26, no. 2, pp. 285-295, 2019. https://doi.org/10.1002/csr.1678

[23] L.-P. Dana, A. Salamzadeh, S. Mortazavi, and M. Hadizadeh, "Investigating the impact of international markets and new digital technologies on business innovation in emerging markets," *Sustainability*, vol. 14, no. 2, p. 983, 2022. https://doi.org/10.3390/su14020983

[24] P. Rikhardsson and O. Yigitbasioglu, "Business intelligence & analytics in management accounting research: Status and future focus," *International Journal of Accounting Information Systems*, vol. 29, pp. 37-58, 2018. https://doi.org/10.1016/j.accinf.2018.03.001

[25] A. R. M. S. Rashwan and Z. A.-E. A. Kassem, *The role of digital transformation in increasing the efficiency of banks' performance to enhance competitive advantage. In The big data-driven digital economy: Artificial and computational intelligence*. Springer. https://doi.org/10.1007/978-3-030-73057-4_25, 2021.

[26] J. F. Hair, J. J. Risher, M. Sarstedt, and C. M. Ringle, "When to use and how to report the results of PLS-SEM," *European Business Review*, vol. 31, no. 1, pp. 2-24, 2019. https://doi.org/10.1108/EBR-11-2018-0203

[27] A. Agbejule, "The relationship between management accounting systems and perceived environmental uncertainty on managerial performance: A research note," *Accounting and Business Research*, vol. 35, no. 4, pp. 295-305, 2005. https://doi.org/10.1080/00014788.2005.9729996

[28] N. Abeysekara, H. Wang, and D. Kuruppuarachchi, "Effect of supply-chain resilience on firm performance and competitive advantage: A study of the Sri Lankan apparel industry," *Business Process Management Journal*, vol. 25, no. 7, pp. 1673-1695, 2019. https://doi.org/10.1108/BPMJ-09-2018-0241

[29] S. Li, B. Ragu-Nathan, T. Ragu-Nathan, and S. S. Rao, "The impact of supply chain management practices on competitive advantage and organizational performance," *Omega*, vol. 34, no. 2, pp. 107-124, 2006. https://doi.org/10.1016/j.omega.2004.08.002

[30] R. J. Calantone, S. T. Cavusgil, and Y. Zhao, "Learning orientation, firm innovation capability, and firm performance," *Industrial Marketing Management*, vol. 31, no. 6, pp. 515-524, 2002. https://doi.org/10.1016/S0019-8501(01)00203-6

[31] B. J. Jaworski and A. K. Kohli, "Market orientation: Antecedents and consequences," *Journal of Marketing*, vol. 57, no. 3, pp. 53-70, 1993. https://doi.org/10.1177/002224299305700304

[32] S. Singh, M. Sharma, and S. Dhir, "Modeling the effects of digital transformation in Indian manufacturing industry," *Technology in Society*, vol. 67, p. 101763, 2021. https://doi.org/10.1016/j.techsoc.2021.101763

[33] C. Fornell and D. F. Larcker, "Evaluating structural equation models with unobservable variables and measurement error," *Journal of Marketing Research*, vol. 18, no. 1, pp. 39-50, 1981.

[34] R. F. Falk and N. B. Miller, *A primer for soft modeling*. Akron, OH: University of Akron Press, 1992.

[35] W. W. Chin, "The partial least squares approach to structural equation modeling," *Modern Methods for Business Research*, vol. 295, no. 2, pp. 295-336, 1998.