

Cash flow management efficiency in Vietnamese SMEs: The mediating role of accounting information quality



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ABSTRACT

This study examines how accounting information systems and internal controls affect Cash Flow Management Efficiency. It integrates Contingency Theory, the Information Systems Success Model, and the Resource-Based View. Primary data were collected from August to November 2024 through surveys of 248 enterprises in Vietnam and analyzed using Partial Least Squares Structural Equation Modeling. The empirical results show that the proposed model explains 36.2% of the variance in information quality and 26.8% of the variance in Cash Flow Management Efficiency. Specifically, both technical system quality ($\beta = 0.396$) and Internal Control Effectiveness ($\beta = 0.403$) have strong positive effects on output information quality. Notably, Accounting Information Quality is identified as the main driver of cash flow efficiency ($\beta = 0.476$) and serves as an important mediator. Furthermore, the rejection of the moderating hypothesis ($\beta = -0.043$), together with the confirmation of the direct effect of Managerial Financial Literacy ($\beta = 0.188$), indicates that financial knowledge functions as an independent strategic resource rather than merely a moderating factor. These findings suggest that the integrated development of technological resources and human capital should be a key priority for optimizing corporate liquidity.

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1. Introduction

In an unpredictable global economy, cash flow management is crucial for the survival of small and medium-sized enterprises (SMEs), which often face financial constraints and limited access to capital (Nirwana et al., 2025). Poor financial record-keeping and a lack of modern tools cause severe liquidity problems, directly threatening a company's survival. Although the advancement of digital technology promises process optimization solutions, their effective implementation requires compatibility with the specific governance context (Oduro et al., 2022). Furthermore, ultimate performance is contingent not merely on technology or processes but is significantly governed by the competency of decision-makers, a factor frequently marginalized in purely technical models. Despite much research on information systems, internal controls, and

performance, there is a lack of understanding about how technology, processes, and people interact together. The majority of prior studies have adopted fragmented approaches or failed to fully elucidate how these resources are translated into cash flow efficiency through the conduit of information quality. Specifically, the dual role of managerial financial literacy, functioning simultaneously as a direct resource and a moderating factor, remains unexamined within an integrated analytical framework. Addressing this imperative, the present study is conducted to validate a comprehensive model integrating contingency theory, the information systems success model, and the resource-based view. The objective is to clarify the mechanism by which governance infrastructure impacts cash flow efficiency, the mediating role of accounting information quality, and the strategic influence of managerial financial literacy within SME.

2. Theoretical background and hypothesis development

This study builds a framework based on three theories: Contingency Theory, the Information Systems Success Model, and the Resource-Based View. Contingency Theory posits that organizational

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performance depends on the alignment between internal governance structures and the specific requirements of the operational context (Oduro et al., 2022). Concurrently, the Information Systems Success Model initiated by DeLone and McLean (2003) provides a mechanism explaining causal relationships wherein technical system quality serves as a prerequisite for generating information quality, subsequently leading to organizational-level impacts. To complement the human capital dimension, the study employs the Resource-Based View to define Managerial Financial Literacy as a form of strategic human capital. Combining these theories explains how technical infrastructure, control processes, and managerial skills drive Cash Flow Management Efficiency.

2.1. The impact of accounting information systems and internal control on information quality

In the era of digitalization, the quality of accounting information systems is regarded as a prerequisite determining the quality of output financial data. Nelson et al. (2005) argued that the quality of this system is reflected through data integration, operational stability, and user responsiveness. Operational practice indicates that when functional modules within the accounting system are tightly integrated, data transmission is automated, significantly minimizing duplication and errors in manual entry and thereby enhancing information reliability. However, technology alone is insufficient in the absence of oversight processes.

The integrated internal control framework (COSO, 1992) identifies the control environment and risk assessment as critical elements in managing organizational risks, including fraud risk. Empirical studies (Jokipii, 2010; Lämsiluoto et al., 2016) suggest that stronger internal control systems enhance overall effectiveness and risk mitigation, which can contribute to the prevention of fraudulent activities. In emerging economies, empirical evidence has confirmed that strict compliance with revenue and expenditure control procedures and segregation of duties are key factors ensuring the truthfulness of financial statements. The combination of technical infrastructure and control mechanisms creates a synergistic effect that safeguards the integrity of input data (Amalia and Siahaan, 2024).

- **H1:** Accounting information system quality has a positive impact on accounting information quality.
- **H2:** Internal control effectiveness has a positive impact on accounting information quality.

2.2. The relationship between accounting information quality and cash flow management efficiency

Accounting Information Quality plays a central role in supporting financial governance decision-

making. High-quality financial information must satisfy attributes regarding relevance, faithful representation, understandability, and timeliness. Zhai and Wang (2016) emphasized that this type of information performs a governance function by reducing information asymmetry and improving capital allocation efficiency. In the context of cash flow management, accurate and up-to-date information allows managers to identify potential liquidity shortages early and adjust working capital effectively (Harianto et al., 2025). Przychocka et al. (2024) asserted that the lack of reliable information is a leading cause of financial failure. When information is assured, enterprises can shorten the cash collection cycle and optimize inventory, thereby enhancing cash flow efficiency according to the trade-off theory (Afrifa, 2016; Deloof, 2003). This demonstrates that useful information serves as an essential bridge transforming raw financial data into effective governance decisions. Therefore, Accounting Information Quality directly impacts cash flow efficiency and mediates the effects of technical systems and internal controls.

- **H3:** Accounting information quality has a positive impact on cash flow management efficiency.
- **H4:** Accounting information quality mediates the relationship between accounting information system quality and cash flow management efficiency.
- **H5:** Accounting information quality mediates the relationship between internal control effectiveness and cash flow management efficiency.

2.3. The dual role of managerial financial literacy

Ultimate Cash Flow Management Efficiency, measured by the ability to maintain liquidity and financial stability (Nirwana et al., 2025), is strongly governed by the human factor. This study proposes that Managerial Financial Literacy impacts cash flow efficiency through a dual mechanism. First, regarding direct impact, the Resource-Based View regards financial literacy as a strategic intangible asset. Lusardi and Mitchell (2014) defined this as the convergence of knowledge and skills for decision-making. Yatimin and Musharianto (2025) indicated that managers with good financial knowledge possess professional intuition to negotiate credit and manage interest rate risk effectively, independent of the reporting system (Hussain et al., 2018). Zakirova et al. (2021) also supported the view that good managerial competency directly improves fund management efficiency. Second, concerning the moderating role, cognitive capacity determines how information is interpreted and utilized (Huston, 2010). Bongomin et al. (2018) argued that knowledge limitations can nullify the value of accurate data. Studies by Susan et al. (2022) provided evidence that financial literacy plays a moderating role that amplifies the impact of governance tools. Specifically, the combination of financial knowledge and digital skills creates

superior adaptive capacity in volatile environments (Rosyidiana et al., 2025).

- **H6:** Managerial financial literacy moderates the relationship between accounting information quality and cash flow management efficiency.
- **H7:** Managerial financial literacy has a positive impact on cash flow management efficiency.

Synthesizing the theoretical arguments and hypothesis system developed above, this study establishes a structural model to visualize the overall impact mechanism of governance resources on cash flow efficiency. The model does not examine relationships in isolation but places them within a unified whole wherein Accounting Information

System Quality and Internal Control Effectiveness serve as input factors creating a reliable information environment. This information flow subsequently acts as a pivotal mediating variable that transmits the impact from governance infrastructure to financial performance. Notably, the model highlights the central role of the human factor by integrating Managerial Financial Literacy as a variable with a dual nature, functioning as an independent resource directly impacting cash flow efficiency and as a boundary condition capable of altering the intensity of the information impact on the final outcome. The logical structure and expected impact paths are generalized in the proposed research model below (Fig. 1).

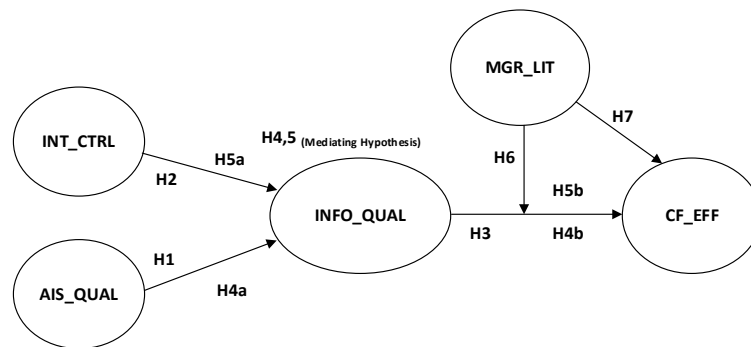


Fig. 1: Research framework

3. Research methodology

This study uses a quantitative, cross-sectional survey to test the relationships among information systems, internal controls, and Cash Flow Management Efficiency. To ensure reliability, we adapted measurement scales from established international studies and translated them to fit the context of Vietnamese SMEs. Specifically, observable variables measuring Accounting Information System Quality were developed based on the success model of DeLone and McLean (2003), while being supplemented and refined by studies from Nelson et al. (2005) and Rapina et al. (2023). Regarding Internal Control Effectiveness, the scale was operationalized based on the COSO (1992) framework combined with empirical studies by Jokipii (2010), Lämsiluoto et al. (2016), and Ngo et al. (2021). The mediating variable, Accounting Information Quality, was measured using the multidimensional scales of Lee et al. (2002), further integrated with specific criteria from Ngo et al. (2021) and Rapina et al. (2023). Managerial Financial Literacy was constructed based on standard assessment tools from Huston (2010), Lusardi and Mitchell (2014), and Dahmen and Rodríguez (2014).

Concerning Cash Flow Management Efficiency, this study employs a perceptual Likert scale rather than objective financial ratios. This approach is necessary because Vietnamese SMEs rarely publish audited financial statements and usually keep quantitative data confidential. Prior methodological

research confirms that when objective financial data is inaccessible, subjective evaluations from senior executives function as highly valid and reliable proxies for actual organizational performance. Consequently, the measurement items were operationalized to evaluate the execution of core financial strategies derived from the theoretical foundations of traditional metrics. Instead of calculating precise quantitative ratios, the scale evaluates the enterprise's practical ability to optimize the cash conversion cycle (DeLoof, 2003) and maintain appropriate cash balances (Opler et al., 1999), supplemented by operational criteria from Dunn and Cheatham (1993), Fatoki (2012), and Afrifa (2016). All items were consistently measured using a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Primary data collection was conducted between August 2024 and November 2024 via the distribution of survey questionnaires to target respondents comprising business owners, chief financial officers, and chief accountants, who serve as key informants possessing critical financial information.

A total of 405 questionnaires were distributed, yielding 286 returned responses. Following data cleaning and the exclusion of substandard responses, the final sample size entered into the analysis consisted of 248 valid observations, corresponding to an effective response rate of 61.2%. Table 1 presents the descriptive statistics of the valid sample (N = 248), stratified by key demographic and organizational attributes.

Table 1: Descriptive statistics of the survey sample

Demographics		Frequency (N = 248)	Percentage (%)
Panel A: Individual characteristics			
Job position	Director	46	18.5
	Chief financial Officer (CFO)/chief accountant	145	58.5
	General accountant	57	23.0
Educational level	Bachelor's degree	187	75.4
	Master's degree or higher	61	24.6
	Less than 3 years	15	6.0
Work experience	From 3 to under 5 years	70	28.2
	From 5 to under 10 years	105	42.3
	10 years or more	58	23.4
Panel B: Firm characteristics			
Business sector	Manufacturing & processing	53	21.4
	Commerce & retail	62	25.0
	Construction & real estate	30	12.1
	Services & tourism	65	26.2
	Transportation & logistics	24	9.7
	Others	14	5.6
Firm operating time	Less than 5 years	31	12.5
	From 5 to under 10 years	102	41.1
	10 years or more	115	46.4

Analysis of sample characteristics indicates a high degree of alignment with research objectives, as the majority of respondents were chief financial officers or chief accountants (accounting for 58.5%, or 145 individuals), followed by general accountants (23.0%, or 57 individuals) and business directors (18.5%, or 46 individuals), ensuring they possessed adequate authority and knowledge to evaluate governance issues. Regarding professional qualifications and experience, 75.4% of respondents held a bachelor's degree and 24.6% held a master's degree or higher; notably, personnel with 5 to 10 years of experience constituted the largest proportion (42.3%), followed by the group with 3 to under 5 years (28.2%). The sample structure also demonstrated high representativeness regarding enterprise type, with a diverse distribution across sectors such as services and tourism (26.2%), commerce and retail (25.0%), and manufacturing and processing (21.4%). Regarding firm operating time, the vast majority of the surveyed enterprises are well-established, with 46.4% having operated for 10 years or more and 41.1% for 5 to under 10 years. Only 12.5% of the sample consists of young firms operating for less than 5 years. This maturity profile, with over 87% operating for more than 5 years, enhances the reliability of the respondents' evaluations regarding governance infrastructure and cash flow management practices. The diversity and quality of this survey sample create a solid premise for the generalizability of the research findings.

Leveraging the collected dataset, the study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) with the support of SmartPLS software to test the hypotheses. We chose PLS-SEM because it handles non-normal data and medium sample sizes well, while supporting the study's goal of prediction and theory building. The analysis process adheres to the guidelines of Hair et al. (2019), encompassing the following stages: first, the assessment of the measurement model through internal consistency reliability, convergent validity, and discriminant validity; subsequently, the assessment of the structural model to verify causal

relationships, explanatory power (R^2), effect size (f^2), and predictive relevance ($Q^2_{predict}$). This approach ensures high scientific rigor and reliability for the conclusions drawn.

4. Research results

First, we assessed the measurement model by checking the reliability of individual indicators using outer loadings. According to the guidelines of Hair et al. (2019), observable variables must achieve a minimum outer loading of 0.708 to ensure that the latent variable explains at least 50% of the indicator's variance. The analytical results from the data table indicate that all observable variables exhibit standardized outer loadings ranging from 0.759 to 0.847, surpassing the recommended threshold of 0.708, thereby demonstrating that the indicators adequately explain the latent constructs. The subsequent step in the analytical process is the evaluation of internal consistency reliability and convergent validity of the scales. Internal consistency reliability is assessed via Cronbach's Alpha and Composite Reliability (CR). Statistical data show that Cronbach's Alpha coefficients for all constructs range from 0.840 to 0.885, and Composite Reliability Coefficients (ρ_A and ρ_C) all exceed the safe threshold recommended by Henseler et al. (2016), evidencing the high reliability of the data. Furthermore, the Average Variance Extracted (AVE) values for all variables are greater than 0.50 (the lowest being 0.609 for AIS_QUAL and the highest being 0.685 for INFO_QUAL), confirming that the scales achieve convergent validity according to the classical criteria of Fornell and Larcker (1981). Simultaneously, the collinearity assessment results in Table 2 show that the Variance Inflation Factor (VIF) coefficients for observable variables fall within the safe range (from 1.690 to 2.241), significantly lower than the threshold of 3.0 proposed by Hair et al. (2019), proving that the model is unaffected by multicollinearity issues and that the regression estimates are reliable.

In addition to assessing reliability and convergent validity, the study proceeds to examine the discriminant validity of the concepts within the model to ensure statistical distinctiveness among them. Table 3 presents the Heterotrait-Monotrait ratio (HTMT) matrix, introduced by Henseler et al. (2015) as a modern and significantly more sensitive evaluation criterion compared to the traditional Fornell-Larcker criterion for detecting a lack of

discriminant validity. Empirical results indicate that all HTMT indices satisfy the strict recommended threshold (< 0.85) as per the guidelines of Henseler et al. (2015) with the highest recorded value being 0.540 (between Accounting Information Quality and Cash Flow Management Efficiency). This provides robust statistical evidence confirming that the scales measure distinct constructs and that concept overlap does not occur.

Table 2: Summary of measurement model assessment results

Latent variable/indicators	Outer loadings	Cronbach's alpha	Composite reliability (rho_C)	Composite reliability (rho_A)	Average variance extracted (AVE)	VIF (range)
AIS_QUAL		0.840	0.886	0.842	0.609	
AIS_QUAL1 - AIS_QUAL5	0.765 - 0.793	-	-	-	-	1.690 - 1.756
INT_CTRL		0.853	0.895	0.860	0.629	
INT_CTRL1 - INT_CTRL5	0.759 - 0.816	-	-	-	-	1.737 - 1.851
INFO_QUAL		0.885	0.916	0.888	0.685	
INFO_QUAL1 - INFO_QUAL5	0.809 - 0.847	-	-	-	-	2.021 - 2.241
CF_EFF		0.870	0.905	0.877	0.657	
CF_EFF1 - CF_EFF5	0.787 - 0.835	-	-	-	-	1.818 - 2.016
MGR_LIT		0.869	0.904	0.885	0.654	
MGR_LIT1 - MGR_LIT5	0.787 - 0.842	-	-	-	-	1.769 - 2.071

Table 3: Summary of discriminant validity (HTMT) assessment

Construct	AIS_QUAL	CF_EFF	INFO_QUAL	INT_CTRL	MGR_LIT
AIS_QUAL					
CF_EFF	0.286				
INFO_QUAL	0.515	0.540			
INT_CTRL	0.162	0.328	0.517		
MGR_LIT	0.067	0.232	0.062	0.068	
MGR_LIT x INFO_QUAL	0.077	0.055	0.069	0.024	0.061

Following the affirmation of the measurement model's reliability, the study proceeds to assess the structural model and test the hypotheses via the Bootstrapping technique with 5,000 subsamples. The overall results of the study are illustrated in Fig. 2. Data from Fig. 2 indicate that the model explains 36.2% of the variance in Accounting Information Quality ($R^2 = 0.362$) and 26.8% of the variance in Cash Flow Management Efficiency ($R^2 = 0.268$). As detailed in Table 4, the path analysis results confirm the significant role of antecedent factors regarding the direct impact hypotheses. Specifically,

Accounting Information System Quality exerts a strong positive impact on Accounting Information Quality ($\beta = 0.396$, $p < 0.001$), supporting hypothesis H1. Similarly, Internal Control Effectiveness also has a positive and highly statistically significant impact on Accounting Information Quality ($\beta = 0.403$, $p < 0.001$), supporting hypothesis H2. More importantly, Accounting Information Quality is proven to be the pivotal factor driving Cash Flow Management Efficiency with the strongest impact coefficient in the model ($\beta = 0.476$, $p < 0.001$), thereby accepting hypothesis H3.

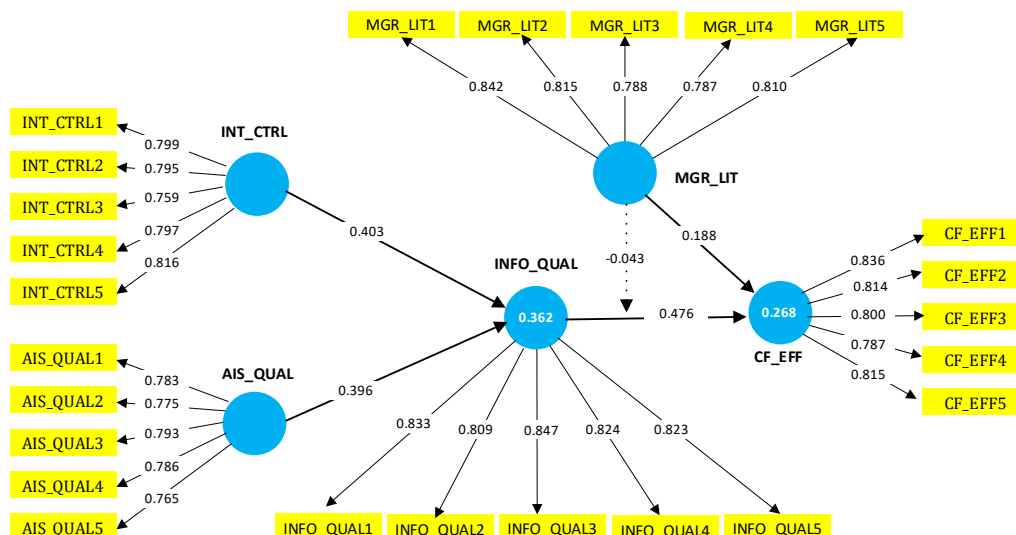


Fig. 2: Structural model estimation results

Table 4: Hypothesis testing results

Hypothesis	Relationship	Coefficient (β)	T-value	P-value	Conclusion
H1	AIS_QUAL \rightarrow INFO_QUAL	0.396	8.285	0.000	Supported
H2	INT_CTRL \rightarrow INFO_QUAL	0.403	8.234	0.000	Supported
H3	INFO_QUAL \rightarrow CF_EFF	0.476	10.108	0.000	Supported
H4	AIS_QUAL \rightarrow INFO_QUAL \rightarrow CF_EFF	0.189	6.542	0.000	Supported
H5	INT_CTRL \rightarrow INFO_QUAL \rightarrow CF_EFF	0.192	5.627	0.000	Supported
H6	MGR_LIT \times INFO_QUAL \rightarrow CF_EFF	-0.043	0.939	0.348	Rejected
H7	MGR_LIT \rightarrow CF_EFF	0.188	3.832	0.000	Supported

Analysis of indirect effects reveals a significant mediating role of Accounting Information Quality. Specifically, the indirect effect of Accounting Information System Quality on Cash Flow Management Efficiency through the mediating variable is 0.189 ($p < 0.001$), supporting hypothesis H4. Similarly, the indirect effect of Internal Control Effectiveness on Cash Flow Management Efficiency is 0.192 ($p < 0.001$), supporting hypothesis H5.

Regarding the moderating hypothesis H6, analytical results indicate that the interaction between Managerial Financial Literacy and Accounting Information Quality does not possess statistical significance for Cash Flow Management Efficiency ($\beta = -0.043, p = 0.348 > 0.05$). Consequently, hypothesis H6 is rejected. However, the acceptance of hypothesis H7 ($\beta = 0.188$) provides a more profound perspective: Financial Literacy does not play a moderating role but operates as a parallel independent variable. This implies that a manager with sound financial knowledge will directly improve corporate cash flow through strategic decisions, independent of the reporting system's quality.

In addition to determining the statistical significance of relationships, the study further evaluates the substantive significance of each independent variable through the effect size index (f^2). The summarized results in Table 5 show a

distinct differentiation in impact intensity among factors. Accounting information quality demonstrates a dominant role in Cash Flow Management Efficiency with an f^2 index of 0.308, corresponding to a medium-to-large effect size according to the standards of Cohen (2013). The two antecedent variables, Accounting Information System Quality and Internal Control Effectiveness, have equivalent contributions to information quality, with f^2 values of 0.241 and 0.250, respectively. Notably, the newly tested relationship from Managerial Financial Literacy to Cash Flow Management Efficiency records a small impact ($f^2 = 0.048$), yet it holds practical significance.

Finally, to affirm the model's utility in predicting new data, the study employs the PLSpredict technique. Results in Table 6 indicate that the $Q^2_{predict}$ indices for both endogenous variables are positive, with Accounting Information Quality reaching 0.346 and Cash Flow Management Efficiency reaching 0.142. According to Shmueli et al. (2019), a $Q^2_{predict}$ value greater than 0 confirms that the model possesses superior predictive capability compared to the baseline benchmark model. Furthermore, the Root Mean Square Error (RMSE) of the PLS model is lower than that of the Linear Model for the majority of indicators, further reinforcing the reliability and predictive power of the proposed model.

Table 5: Effect size assessment results

Relationship	Coefficient f^2	Impact level
AIS_QUAL \rightarrow INFO_QUAL	0.241	Medium
INT_CTRL \rightarrow INFO_QUAL	0.250	Medium
INFO_QUAL \rightarrow CF_EFF	0.308	Medium - Large
MGR_LIT \rightarrow CF_EFF	0.048	Small
MGR_LIT \times INFO_QUAL \rightarrow CF_EFF	0.003	Negligible

Table 6: Predictive relevance assessment results

Endogenous variable	$Q^2_{predict}$	RMSE (PLS-SEM)	MAE (PLS-SEM)	Predictive Conclusion
Accounting information quality (INFO_QUAL)	0.346	0.815	0.659	Good
Cash flow management efficiency (CF_EFF)	0.142	0.936	0.747	Fair

5. Discussion

The core objective of this study was to elucidate the mechanism through which governance infrastructure resources are transformed into financial performance within small and medium-sized enterprises, by integrating Contingency Theory, the Information Systems Success Model, and the Resource-Based View. Empirical results have provided robust statistical evidence confirming the suitability of the proposed model, wherein Accounting Information Quality plays a pivotal mediating role bridging technical factors, control

processes, and Cash Flow Management Efficiency. These findings not only reinforce foundational theories but also expand the understanding of the strategic role of Managerial Financial Literacy in the context of digital transformation. Regarding the antecedents of Accounting Information Quality, the results indicate that both Accounting Information System Quality and Internal Control Effectiveness exert positive and equivalent impacts on output information quality. This finding aligns with the classical perspective of DeLone and McLean (2003), affirming that superior technical characteristics such as system integration and stability are necessary

conditions for generating reliable data. However, this study extends beyond prior works by demonstrating that technology alone is insufficient. The discovery of a strong positive relationship between internal control and information quality has further consolidated arguments regarding the role of governance in emerging economies. This implies that in small and medium-sized enterprises, where resources are constrained, establishing a rigorous control environment pursuant to the [COSO \(1992\)](#) framework is of equal importance to investing in modern accounting software. The balance between technical infrastructure and compliance monitoring mechanisms is the key to minimizing errors and enhancing the faithful representation of financial statements ([Amalia and Siahaan, 2024](#)).

The subsequent significant highlight of the study lies in clarifying the role of Accounting Information Quality in Cash Flow Management Efficiency. Analysis reveals this to be the most potent factor in the model, confirming the arguments of [Przychocka et al. \(2024\)](#) and [DeLone and McLean \(2003\)](#) that a firm's ability to maintain liquidity depends directly on the accuracy and timeliness of information flows. Unlike the study by [Afrifa \(2016\)](#), which focused heavily on quantitative financial metrics, these results point to a behavioral mechanism wherein high-quality accounting information mitigates information asymmetry, allowing managers to accurately forecast cash requirements and optimize working capital turnover. Furthermore, the confirmation of the crucial mediating role of Accounting Information Quality (via hypotheses H4 and H5) contributes a novel perspective compared to previous research. It explains why many enterprises, despite substantial investments in ERP systems or control processes, fail to improve cash flow efficiency; the core reason is that these input resources have not been effectively transformed into useful information supporting decision-making according to the standards of [Harianto et al. \(2025\)](#).

A key theoretical contribution is finding that Managerial Financial Literacy has a direct impact (H7) but not a moderating effect (H6). While behavioral theories suggest that financial knowledge should amplify the transformation of accounting information into effective decisions, empirical evidence reveals no statistically significant interaction effect. This requires an explanation based on the SME context, measurement methods, and statistics. First, the centralized governance nature of small and medium-sized enterprises plays a pivotal role. These firms typically exhibit highly centralized management structures where owner-managers dominate the decision making and operational control processes ([Culkin and Smith, 2000](#)). In this context, managers directly execute daily cash flow operations. They integrate formal reports with tacit knowledge, personal experience, and informal interactions during business operations ([Adesina and Ocholla, 2024](#)). Consequently, the decision-making process in these enterprises is unstructured and highly individualistic. This differs significantly

from large corporations characterized by formal governance systems and clear decentralization. Because managers are directly involved in liquidity decisions, formal accounting channels are no longer the sole catalysts for action. Therefore, the marginal value of financial literacy amplifying accounting information is substantially reduced. This ultimately makes the interaction effect difficult to detect. Second, high-quality accounting information systems create a substitution effect. When information fulfills the criteria of transparency, understandability, and timeliness, the cognitive load required to interpret data is significantly reduced ([DeLone and McLean, 2003](#)). In these cases, the system supports decisions so well that individual financial knowledge adds little extra value. Essentially, a good information system compensates for a user's lack of expertise, reducing the moderating effect. Third, the absence of a moderating effect may stem from methodological constraints. Range restriction within the survey sample might result in insufficient variance in financial literacy to capture interactions. Furthermore, the moderating effect could be non-linear, manifesting only when financial literacy surpasses a specific threshold ([Lusardi and Mitchell, 2014](#)). If the majority of managers possess a moderate level of expertise, linear models will fail to identify this relationship.

In contrast, the robust support for H7 reaffirms financial literacy as an independent strategic resource. Consistent with the Resource-Based View ([Barney, 1991](#)), managers leverage specialized financial knowledge to create value directly through credit negotiations, proactive interest rate risk management, and strategic investment planning ([Yatimin and Musharianto, 2025](#)). These activities operate in parallel with and independently of internal reporting systems. They remain unaffected by the quality of accounting information, explaining why the direct impact is confirmed even without a moderating effect. Evidently, technical infrastructure and human capital function as two autonomous strategic pillars. They contribute individually to Cash Flow Management Efficiency rather than operating as interdependent conditions. This distinction clarifies the causal mechanisms within the SME context and establishes a foundation for future research to explore boundary conditions such as organizational complexity and information system sophistication.

6. Conclusion

This study was conducted with the core objective of decoding the mechanism for transforming governance infrastructure resources and human capital into actual financial performance in the small and medium-sized enterprise sector. Our PLS-SEM results provide a clear picture of cash flow management in the digital era, revealing two parallel mechanisms. First, regarding the infrastructure aspect, the study affirms that Accounting Information System Quality and Internal Control

Effectiveness are two pillars of equivalent importance in creating data reliability. A critical conclusion drawn is that investing in management software or establishing strict control processes does not directly lead to immediate improvements in liquidity. Instead, they must operate through the fundamental mediating role of Accounting Information Quality. This implies that the true value of technology and processes lies not in themselves, but in their ability to generate accurate and timely information flows to support decision-making. Second, regarding the human aspect, the study has redefined the role of the manager. The rejection of the moderating hypothesis (H6) suggests that the progress of display technology and automation has simplified data access, reducing reliance on individual interpretative ability. However, the strong confirmation of the direct impact of financial literacy (H7) leads to the conclusion that financial knowledge remains an independent strategic resource. In the modern business environment, while machines can easily assist in comprehending reports, managers must utilize their acute financial acumen to execute negotiation, risk management, and investment strategies. These are activities that information systems cannot yet replace.

From these findings, this study proposes a practical governance framework for SMEs. SME owners should prioritize standardizing information flows through the integration of accounting systems with strong internal controls while also improving the financial literacy of the leadership team as a key strategic resource. By combining reliable technological infrastructure with skilled management, SMEs can improve cash flow efficiency and better respond to economic uncertainty. Despite these contributions, this study has several limitations. The use of cross-sectional data and a limited sample size restricts the ability to establish causal relationships over time. Therefore, future studies should use longitudinal data to examine the long-term effects of technology investments on financial performance. In addition, the decision-making processes of SME managers require further investigation. Future research could use qualitative methods to explore how managerial judgment interacts with system-generated information and conduct comparative studies across different industries to provide a more comprehensive understanding of corporate financial management.

List of abbreviations

AIS	Accounting information system
AIS_QUAL	Accounting Information System Quality
AVE	Average variance extracted
CA	Cronbach's alpha
CF_EFF	Cash flow management efficiency
CFO	Chief financial officer
COSO	Committee of Sponsoring Organizations of the Treadway Commission
CR	Composite reliability
ERP	Enterprise resource planning
HTMT	Heterotrait-Monotrait ratio

INFO_QUAL	Accounting information quality
INT_CTRL	Internal control effectiveness
MAE	Mean absolute error
MGR_LIT	Managerial financial literacy
PLS	Partial least squares
PLS-SEM	Partial least squares structural equation modeling
Q ² _predict	Predictive relevance statistic
rho_A	Reliability coefficient
rho_C	Composite reliability
RMSE	Root mean square error
SMEs	Small and medium-sized enterprises
VIF	Variance inflation factor

Compliance with ethical standards

Ethical considerations

This study involved the use of a questionnaire administered to human participants. All participants were fully informed about the purpose of the research and voluntarily provided their informed consent prior to completing the survey. Data were collected anonymously to ensure the privacy and confidentiality of the participants.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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