








“How the application of strategic management accounting techniques influences investment decisions: Evidence from Vietnamese manufacturing enterprises”

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HOW THE APPLICATION OF STRATEGIC MANAGEMENT ACCOUNTING TECHNIQUES INFLUENCES INVESTMENT DECISIONS: EVIDENCE FROM VIETNAMESE MANUFACTURING ENTERPRISES

Abstract

Strategic management accounting techniques play a vital role in manufacturing enterprises by integrating financial and non-financial information to support strategy formulation and investment decision-making. Strategic management accounting techniques offer businesses a comprehensive view of internal operations and external market conditions, enhancing competitiveness and enabling more effective resource allocation. This study investigates how Strategic management accounting (SMA) techniques enhance investment decision-making by integrating financial and non-financial information. A survey of 650 manufacturing firms in Vietnam was conducted, and data were analyzed using Structural Equation Modeling to examine the impact of various factors on SMA adoption and investment decisions. The findings reveal eight significant factors influencing SMA adoption, with effect sizes as follows: accounting staff quality (0.258), business strategy (0.200), accounting information systems (0.199), perceived environmental uncertainty (0.178), risk acceptance (0.148), technology adoption (0.093), managerial characteristics (0.085), and cost-benefit considerations (0.056). Furthermore, firm size was found to moderate the relationship between SMA application and investment decision-making with an effect size of 0.02. The study concludes with several managerial implications aimed at improving SMA adoption and enhancing the effectiveness of strategic investment decisions.

Keywords

strategic management accounting, strategic management accounting techniques, manufacturing enterprise, investment decision-making, Vietnam

JEL Classification M41, M19

INTRODUCTION

Manufacturing enterprises face unprecedented challenges and opportunities amid a rapidly changing and volatile global economy. Market dynamism, rapid technological advancements, and shifting consumer preferences require organizations to respond with agile, timely, and effective strategic actions. Among these, investment decisions critical for ensuring business survival and sustainable growth are becoming increasingly complex and risky, especially in emerging economies such as Vietnam, where environmental uncertainty and competitive pressure are intensifying.

In this context, traditional management accounting systems primarily focus on historical data and short-term cost control and have shown limitations in meeting the demand for forward-looking strategic in-

formation essential for investment decisions. Strategic Management Accounting has emerged as an integrative approach that incorporates strategic considerations into management accounting practices, providing more comprehensive information to support planning and decision-making. Applying SMA is particularly significant in fast-growing, industrializing countries like Vietnam.

However, empirical research has concentrated on the relationship between SMA and business performance. At the same time, limited attention has been given to its role in supporting investment decisions, an essential factor in long-term development. Moreover, most prior studies remain broad in scope and do not delve into specific sectors, especially manufacturing, a key pillar of Vietnam's economy characterized by large-scale investments, high risks, and an elevated need for strategic information.

Therefore, identifying the factors influencing the adoption of SMA and analyzing its impact on investment decision-making in manufacturing enterprises helps address gaps in the current empirical literature and provides practical implications for managers seeking to enhance the quality of strategic decision-making. In Vietnam's deepening global integration and shift toward a productivity and innovation-driven growth model, understanding the conditions that promote effective SMA implementation is crucial to strengthening management capabilities, optimizing investment resources, and fostering sustainable development in the manufacturing sector.

1. LITERATURE REVIEW

In an increasingly volatile global business environment and under growing competitive pressure, the need for practical management tools to support strategic decision-making has become more pressing. Traditional management accounting, which primarily emphasizes cost control and internal performance, has gradually exposed its limitations in facilitating long-term strategic planning (Simmonds, 1981; Tillmann & Goddard, 2008; Cinquini & Tenucci, 2010). To overcome these constraints, SMA has emerged as an integrated tool that combines accounting with strategic management, offering forward-looking information particularly useful in uncertain business contexts (Kornchai, 2020; Oyewo, 2022).

SMA incorporates a variety of outward-looking techniques, including competitor analysis, brand valuation, customer analysis, value chain analysis, and several performance measurement tools such as the balanced scorecard, target costing, and Just-in-Time production (Guilding et al., 2000; AbdulHussien & Hamza, 2012). These tools assist businesses not only in planning and operational control but also in making better investment decisions, allocating resources more efficiently, and sustaining competitive advantage (Al-sayed, 2015; Jbarah, 2017; Bawaneh, 2018; Alhabil & Salem, 2023).

SMA adoption is influenced by various internal and external factors. In particular, environmental instability and intense market competition often encourage enterprises to adopt flexible techniques and a long-term strategic orientation (Pavlatos & Kostakis, 2015; Sumkaew, 2016; Nuong, 2021). Organizational characteristics such as firm size, degree of decentralization, maturity of information technology systems, ownership structure including foreign ownership, and corporate culture all play significant roles in shaping SMA implementation (Cadez & Guilding, 2008; Azudin & Mansor, 2018; Ma et al., 2022). Firms that are innovation-oriented and technologically advanced tend to have more favorable conditions for integrating accounting into their strategic planning processes (Van & Lan, 2020; Anh et al., 2022; Quang et al., 2023).

Furthermore, business strategy and market orientation also guide the selection of appropriate SMA techniques (Ojra, 2014; Marlina et al., 2023). Enterprises following a cost leadership strategy often concentrate on cost efficiency and operational control, whereas those that pursue product differentiation tend to focus more on customer value and market-based measurements (Abdullah & Said, 2015). The role of accounting in strategic decision-making has become increasingly significant, as accounting teams not only record and report information but also contribute directly to strategic analysis and decision support for top management (Lan, 2023; Ly & Hung, 2024).

Human-related factors are also critical in determining whether SMA techniques are adopted successfully within enterprises. The professional qualifications, practical experience, creativity, and adaptability of management teams have a substantial influence on their ability to implement advanced management tools (Pavlatos & Kostakis, 2018; Rasheed & Siddiqui, 2019). Moreover, personal characteristics such as age, leadership background, risk tolerance, and openness to change significantly impact SMA adoption decisions (Nguyen et al., 2023; Ngoc, 2023). Effective cooperation between accounting and management, along with a corporate culture that encourages learning and innovation, creates a supportive environment for strategic management practices (Hadid & Al-Sayed, 2021; Hung, 2023). In addition, users' perceptions of ease of use, referring to the belief that applying a certain technique or system will require minimal effort, also positively influence its acceptance and use (Anh & Phuong, 2023).

Accounting information systems are essential in providing timely and accurate data for strategic management and investment decision-making. With the rapid development of digital technology, these systems have been increasingly integrated with modern technologies to enhance the strategic value of accounting functions (Fitriati & Mulyani, 2015; Pavlatos & Kostakis, 2015; Nga, 2020; Oladele et al., 2023). Leveraging accounting information systems, especially through SMA, enables decision-makers to access relevant insights that drive more informed and forward-looking strategies (Van & Linh, 2023). Technologies such as artificial intelligence, big data analytics, and cloud computing have made it easier for companies to gather, process, and analyze real-time information, thereby improving forecasting, risk management, and the precision of strategic decisions (Al-Omiri & Drury, 2007; Abdel-Kader & Luther, 2008). These advancements make SMA more dynamic and responsive and also open up opportunities for small and medium-sized enterprises to improve their strategic capabilities despite resource constraints (Ha, 2024).

SMA plays an especially vital role in investment decision-making, an activity with long-term impacts and inherent risks. It provides strategic information that helps firms evaluate invest-

ment projects based on expected returns, market trends, and internal resource capabilities (Briston & Liversidge, 1979; Bowen et al., 2014; Kemuma, 2014). Unlike traditional accounting, which primarily relies on historical financial data, SMA integrates information about customer behavior, internal strengths, and competitive dynamics, helping ensure that investment decisions align with long-term strategic objectives.

Some specific SMAs have proven effective in supporting investment-related decisions. The Balanced Scorecard is a particularly valuable tool that enables a multidimensional assessment of investment performance by considering financial results, customer satisfaction, internal process efficiency, and organizational learning and development (Perić & Đurkin, 2015). Target Costing facilitates early-stage cost control by determining cost goals that reflect both customer expectations and competitive strategies (Abu Mater & Kanasro, 2018). Meanwhile, Just-in-Time techniques enhance supply chain efficiency, reduce inventory costs, and improve capital utilization. Other tools, such as value chain analysis, customer analysis, and competitor analysis, help businesses evaluate the strategic alignment of investment projects with their core competencies, competitive advantages, and market demands.

In conclusion, SMA functions as an indispensable strategic tool within the context of investment decision-making, which plays a decisive role in sustainable business development. Its effective integration into project evaluation, selection, and performance monitoring can help firms gain long-term competitive advantages and increase enterprise value in a highly competitive global environment.

2. RESEARCH OBJECTIVES AND HYPOTHESIS DEVELOPMENT

The primary objective of this study is to identify the key factors influencing the adoption of SMA and to examine their impact on investment decision-making within manufacturing enterprises in Vietnam. In addition, the research investigates the

moderating role of firm size (SIZ) in the relationship between the application of SMA and investment decisions.

Furthermore, the study aims to provide practical recommendations to support manufacturing firms in successfully implementing SMA, thereby enhancing the effectiveness of investment decisions in alignment with available organizational resources.

Based on theoretical foundations and prior studies, the following hypotheses are proposed:

H1a: Perceived environmental uncertainty has a positive impact on SMA application.

H1b: Perceived environmental uncertainty has a positive impact on investment decision-making.

H1c: Perceived environmental uncertainty has a positive impact on investment decision-making through the mediation of SMA application.

H2a: Applied technology has a positive impact on SMA application.

H2b: Applied technology has a positive impact on investment decision-making.

H2c: Applied technology has a positive impact on investment decision-making through the mediation of SMA application.

H3a: Business strategy has a positive impact on SMA application.

H3b: Business strategy has a positive impact on investment decision-making.

H3c: Business strategy has a positive impact on investment decision-making through the mediation of SMA application.

H4a: Accountant qualifications have a positive impact on SMA application.

H4b: Accountant qualifications have a positive impact on investment decision-making through the mediation of SMA application.

H5a: Risk-taking tendencies have a positive impact on SMA application.

H5b: Risk-taking tendencies have a positive impact on investment decision-making through the mediation of SMA application.

H6a: Accounting information systems have a positive impact on SMA application.

H6b: Accounting information systems have a positive impact on decision-making.

H6c: Accounting information systems have a positive impact on investment decision-making through the mediation of SMA application.

H7a: Managerial characteristics have a positive impact on SMA application.

H7b: Managerial characteristics have a positive impact on investment decision-making.

H7c: Managerial characteristics have a positive impact on investment decision making through the mediation of SMA application.

H8a: The benefit-cost relationship has a positive impact on SMA application.

H8b: The benefit-cost relationship has a positive impact on investment decision-making.

H8c: The benefit-cost relationship has a positive impact on investment decision-making through the mediation of SMA application.

H9: Applying SMA has a positive impact on investment decision-making.

Based on the proposed research hypotheses, a conceptual model was developed, as illustrated in Figure 1, which includes the variables: perceived environmental uncertainty (PEU), applied technology (ATP), business strategy (BTS), accountant qualifications (ASQ), risk-taking tendencies (TAR), accounting information systems (AIS), Managerial characteristics (CEO), the benefit-cost relationship (BCA), strategic management accounting techniques (SMA), investment decision making (LTD), and firm size (SIZ).

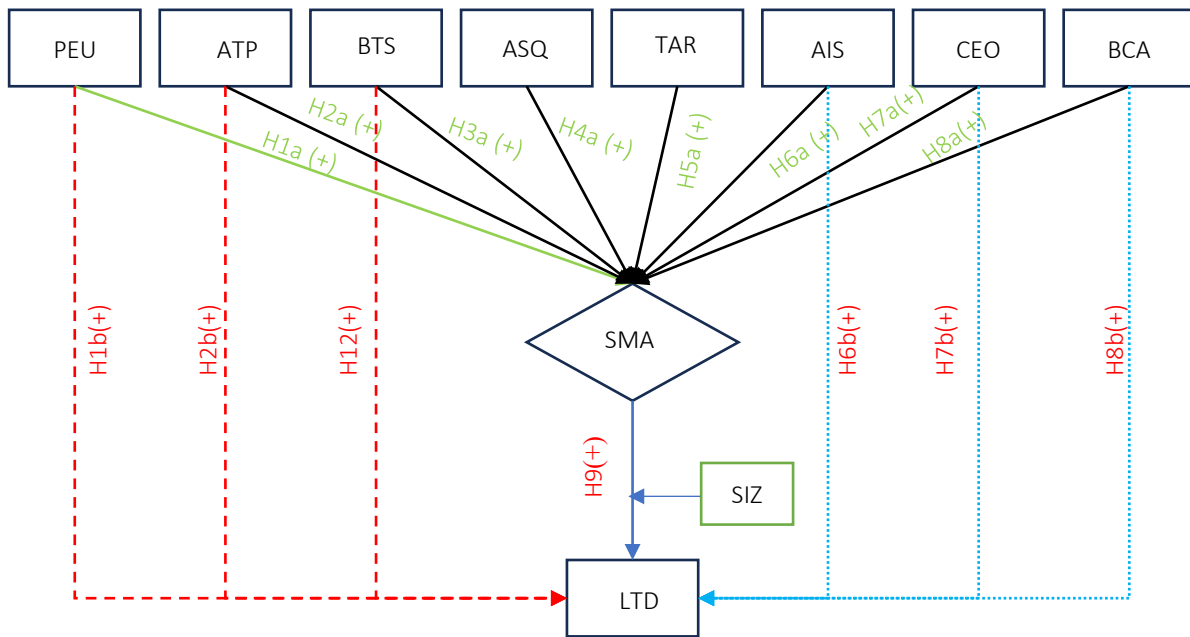


Figure 1. Proposed research model

3. METHODOLOGY

This study employed a mixed-methods research design, integrating qualitative and quantitative approaches to develop the research model, refine measurement scales, and test hypothesized relationships. The research procedure was conducted in the following stages.

3.1. Qualitative phase

A literature review related to SMA, its influencing factors, and its impact on investment decisions was conducted to identify constructs and potential measurement items.

Semi-structured interviews were conducted with a panel of 13 experts, including business owners, senior managers (CFOs, Directors), middle managers (chief accountants) from manufacturing enterprises in Da Nang, Quang Nam, and Hue, and other provinces, as well as academics and researchers specialized in management accounting. This qualitative dataset was collected based on in-depth interview procedures as described by Lan (2023).

For experts located in distant geographical areas, interviews were conducted online via Zoom; meanwhile, for experts based in Quang Nam, Da Nang, and Hue, face-to-face interviews were con-

ducted to ensure a higher level of interaction and data richness.

The questionnaire was sent out in advance of the interview, allowing participants time to review the content. Interview appointments were also confirmed beforehand to ensure smooth scheduling. Each interview lasted between 30 and 60 minutes and was audio-recorded with the participant's consent to maintain accuracy in data collection.

The primary aim of the interviews was to validate the relevance of the identified factors and measurement scales within the Vietnamese context and gather feedback for refining the questionnaire for the subsequent quantitative phase. The author also ensured the confidentiality of participants' information and protected their privacy to avoid any inconvenience or discomfort.

3.2. Survey instrument finalization

Based on the literature review and expert feedback, a structured questionnaire was developed. Measurement scales for all latent variables were adapted from established prior studies (Appendix A) alongside expert recommendations.

All survey items used a 5-point Likert scale (e.g., from 1 "Strongly disagree" to 5 "Strongly agree" or

from 1 “Not applied at all” to 5 “Very frequently applied”), a common approach to capture perceptions and frequencies in management research (Tabachnick & Fidell, 2007).

The questionnaire was initially drafted in English, then translated into Vietnamese by bilingual experts, and back-translated to ensure conceptual equivalence. A pilot test with a small sample of manufacturing managers was conducted to check clarity, comprehension, and length, resulting in minor wording adjustments. The finalized questionnaire is presented in Appendix B.

3.3. Quantitative phase

The target population comprised manufacturing enterprises in Vietnam, including sectors such as consumer goods, chemicals, construction materials, textiles, footwear, and seafood processing. These industries were selected due to their significant strategic management needs and representativeness of Vietnamese manufacturing characteristics. Additionally, their diverse industry structures and enterprise sizes help ensure that the data collected accurately reflect the actual application of SMA across different production environments.

A stratified sampling approach was applied to ensure representation across enterprises of different sizes, including capital and workforce, industry sectors, enhancing the generalizability of findings. Strata were defined according to common Vietnamese industry classifications and enterprise size categories.

The study was conducted from January to June 2024. Questionnaires were distributed to managers (owners, senior, and middle managers) in selected companies who were knowledgeable about the company’s strategic practices and investment decisions. Only one response per company was collected to ensure focused and accurate data.

According to the guidelines of Hair et al. (2006) and Tabachnick and Fidell (2007), the minimum required sample size is calculated using the formula $n \geq 50 + 8k$, where k is the number of independent variables (in this case, $k = 8$), resulting in a minimum sample size of approximately 106. However, to ensure sufficient statistical power

and to account for potential non-responses or invalid data, the target sample size was set significantly higher. During the data collection process, 720 survey questionnaires were distributed. After screening for completeness and validity, 650 valid responses were retained and used for quantitative analysis.

3.4. Data analysis

The collected quantitative data were screened for missing values and outliers. Descriptive statistics were generated using SPSS 26.0 to summarize the sample characteristics and the SMA application level. Partial Least Squares Structural Equation Modeling using SmartPLS 4.0 software was employed to analyze the data. PLS-SEM is well-suited for complex models, studies involving latent variables, and when the research objective is prediction and explanation of variance (Hair et al., 2006). The analysis involved a two-step approach.

Assessment of the measurement model: This step evaluated the reliability (Cronbach’s Alpha, Composite Reliability – CR) and validity (Convergent validity – Average Variance Extracted (AVE), Outer Loadings; discriminant validity Fornell-Larcker criterion, Heterotrait-Monotrait ratio (HTMT) of the scales.

Assessment of the structural model: This step involved examining the path coefficients (β), their statistical significance (t-values and p-values) through bootstrapping (5,000 resamples), and the coefficient of determination (R^2) for endogenous variables to test the hypothesized relationships; mediation effects were also assessed.

4. RESULTS

4.1. Descriptive statistics

Firm size, primary production industries, workforce size, and respondent characteristics, like positions and qualifications, are all mentioned in the descriptive statistics section. The descriptive statistics table in Appendix C shows that most respondents (49.7%) are in senior management, followed by middle managers (37.3%), and 13% are firm owners or legal agents. According

to this distribution, the survey's primary target audience was operational and strategic business community leaders. Small and medium-sized businesses are well represented in the survey, with most companies (39.7%) having capital in the 5-100 billion VND category. There is a wide range of firm sizes, with 29.1% of companies having capital between 151-200 billion VND and 18.6% having capital exceeding 200 billion VND.

There are a significant number of mid-sized and larger enterprises in the area, as seen by the fact that 36.2% of businesses employ between 100 and 150 people, followed by 34.2% with over 150 employees and 29.7% with fewer than 100 employees. With 13.1% to 15.7% of respondents, the main industries represented are diverse, with substantial participation in consumer goods manufacturing, mechanical engineering, machinery, and seafood processing. Interestingly, the manufacturing of consumer products has the highest representation (15.7%), while the energy sector has the lowest (13.1%). The respondents' high educational standards are in line with their administrative and leadership roles, as evidenced by the fact that 60.9% of participants held undergraduate degrees and 39.1% held postgraduate degrees. All things considered, this data demonstrates a wide variety of business executives from various industries and company sizes in Vietnam, providing valuable perspectives for the region's economic research (Appendix C).

4.2. SMA application level

Only nine out of sixteen SMAs mentioned in surveys of manufacturing companies in Vietnam have been applied, including lifecycle costing, quality costing, target costing, integrated performance measurement, strategic pricing, balanced scorecard, customer profitability analysis, benchmarking, and attribute costing, denoted respectively as SMA1 to SMA9, presented in Appendix C.

Due to the limited adoption of SMA among manufacturing enterprises and the potential confusion some methods may cause for survey participants, the remaining methods were excluded. Another reason is that the limited financial and human resources of these enterprises have made the implementation of these methods even more challenging.

Descriptive statistical data for the variables from SMA1 to SMA9, based on a survey sample of 650 observations, reveal that their minimum values range from 1 to 2, while their maximum values are 5; a scale of 1 to 5 is used for measurements. According to the mean values of the variables, which range from 3.64 to 3.73, the majority of respondents rate the parameters being studied relatively highly, nearly a 4 on a 5-point scale. The standard deviation of the variables, which ranges from 0.599 to 0.671, indicates that ratings around the mean value do not vary significantly. The average values of factors such as SMA1 (3.70 ± 0.627), SMA5 (3.73 ± 0.644), and SMA9 (3.70 ± 0.607)

Table 1. Results of the evaluation of the outcome measurement model

Factors	CR (0.6-0.95)	OL (> 0.7)	AVE (>0.5)	Composite reliability (0.6-0.95)	Heterotrait- Monotrait Ratio (HTMT)
PEU	0.868	0.756-0.826	0.653	0.894	Accepted
ATP	0.838	0.771-0.779	0.607	0.839	Accepted
BTS	0.888	0.779-0.816	0.626	0.881	Accepted
ASQ	0.88	0.805-0.855	0.675	0.88	Accepted
TAR	0.832	0.831-0.883	0.74	0.901	Accepted
AIS	0.852	0.816-0.863	0.693	0.853	Accepted
CEO	0.872	0.838-0.866	0.723	0.873	Accepted
BCA	0.841	0.844-0.904	0.759	0.842	Accepted
LTD	0.933	0.749-0.877	0.624	0.933	Accepted
SIZ x SMA → LTD	0.201		0.2	0.259	Accepted

Note: Perceived environmental uncertainty (PEU); Applied technology (ATP); Business strategy (BTS); Accountant qualifications (ASQ); Risk-taking tendencies (TAR); Accounting information systems (AIS); Managerial characteristics (CEO); The benefit-cost relationship (BCA), Strategic management accounting techniques (SMA); Investment decision-making (LTD); Firm size (SIZ).

are higher than those of the other variables, indicating that respondents perceive these factors as more significant than the others.

4.3. Measurement model evaluation results

4.3.1. Evaluating the results of the measurement model

The processing results by SMART PLS 4.0 of the variables PEU, ATP, BTS, ASQ, TAR, AIS, CEO, and BCA have the following values: (i) internal consistency reliability; (ii) convergent validity; and (iii) discriminant validity, which all meet the requirements and are summarized in Table 1.

4.3.2. Structural model evaluation

4.3.2.1. Assessment of multicollinearity

VIF (Variance Inflation Factor) coefficient is greater than or equal to 5, multicollinearity is likely to appear in the model. If VIF is between 3 and 5, multicollinearity may occur, while a VIF less than 3 usually indicates no multicollinearity (Hair et al., 2017). Processing with SMART PLS 4, the VIF coefficient results of all independent variables are less than 3, so it can be concluded that multicollinearity does not occur in the model, and the details are presented in Appendix E.

4.3.2.2. Assessing the significance and relevance of relationships in the model

The Bootstrap analysis method with 5,000 iterations was used to evaluate the impact of relationships between research concepts. The path coefficient shows the level of influence between concepts. The statistical significance of these coefficients is determined through the standard error obtained from the Bootstrap results table, which presents the direct impact test results in Table 2.

The results of structural model testing show that all hypotheses from H1a to H9 are accepted with a statistical significance level of $p < 0.05$. Specifically, the factors PEU, ATP, BTS, ASQ, TAR, AIS, CEO, and BCA positively impact the application of SMA and also affect LTD. In addition, the application of SMA is also confirmed to positively impact LTD, clarifying the mediating role in the research model. In addition, the firm size moderator variable (SIZE), when combined with the application of SMA, also shows a statistically significant impact on LTD, emphasizing the role of capital size in investment decision-making.

The study tested the indirect effects to assess the mediating role of applying the SMA technique in the relationship between the independent variables PEU, ATP, BTS, ASQ, TAR, CEO, BCA, AIS, and LTD. The results are presented in Table 3.

Table 2. Direct effect hypothesis testing

Hypothesis	Impact Relationship	Path Coefficient	t-value	p-value (<0.05)	Conclusion
H1a	PEU → SMA	0.178	6.892	0.000	Accepted
H1b	PEU → LTD	0.082	3.388	0.000	Accepted
H2a	ATP → SMA	0.093	3.732	0.000	Accepted
H2b	ATP → LTD	0.128	5.251	0.000	Accepted
H3a	BTS → SMA	0.200	7.354	0.000	Accepted
H3b	BTS → LTD	0.080	3.106	0.000	Accepted
H4a	ASQ → SMA	0.258	9.281	0.000	Accepted
H5a	TAR → SMA	0.148	7.009	0.000	Accepted
H6a	AIS → SMA	0.199	7.454	0.000	Accepted
H6b	AIS → LTD	0.077	2.979	0.003	Accepted
H7a	CEO → SMA	0.085	3.465	0.001	Accepted
H7b	CEO → LTD	0.296	13.970	0.000	Accepted
H8a	BCA → SMA	0.056	2.557	0.001	Accepted
H8b	BCA → LTD	0.088	4.235	0.000	Accepted
H9	SMA → LTD	0.318	9.959	0.000	Accepted
	SIZE x SMA → LTD	0.02	6.683	0.000	

Table 3. Indirect effect hypothesis testing

Hypothesis	Impact relationship	Standardized impact factor (O)	Sample Mean (M)	Deviation (STDEV)	P-value	Conclusion
H1c	PEU → SMA → LTD	0.057	0.057	0.010	0.000	Accepted
H2c	ATP → SMA → LTD	0.030	0.030	0.008	0.000	Accepted
H3c	BTS → SMA → LTD	0.064	0.063	0.011	0.000	Accepted
H4b	ASQ → SMA → LTD	0.082	0.082	0.012	0.000	Accepted
H5c	TAR → SMA → LTD	0.047	0.047	0.008	0.000	Accepted
H6c	AIS → SMA → LTD	0.063	0.063	0.011	0.000	Accepted
H7c	CEO → SMA → LTD	0.027	0.027	0.008	0.001	Accepted
H8c	BCA → SMA → LTD	0.018	0.018	0.007	0.015	Accepted

The results above show that all impact relationships' indirect effect values are statistically significant at the 5% level. Bootstrapping results show that the 95% confidence interval does not contain the value 0. Thus, there is an impact of the factors ASQ, BTS, AIS, PEU, TAR, ATP, CEO, and BCA on LTD through

SMA, which means that the hypotheses from H1c-H8c are accepted.

SMA's adjusted coefficient of determination (adjusted R²) reached a value of 0.712. According to Hair et al. (2017), the R² value is evaluated as fol-

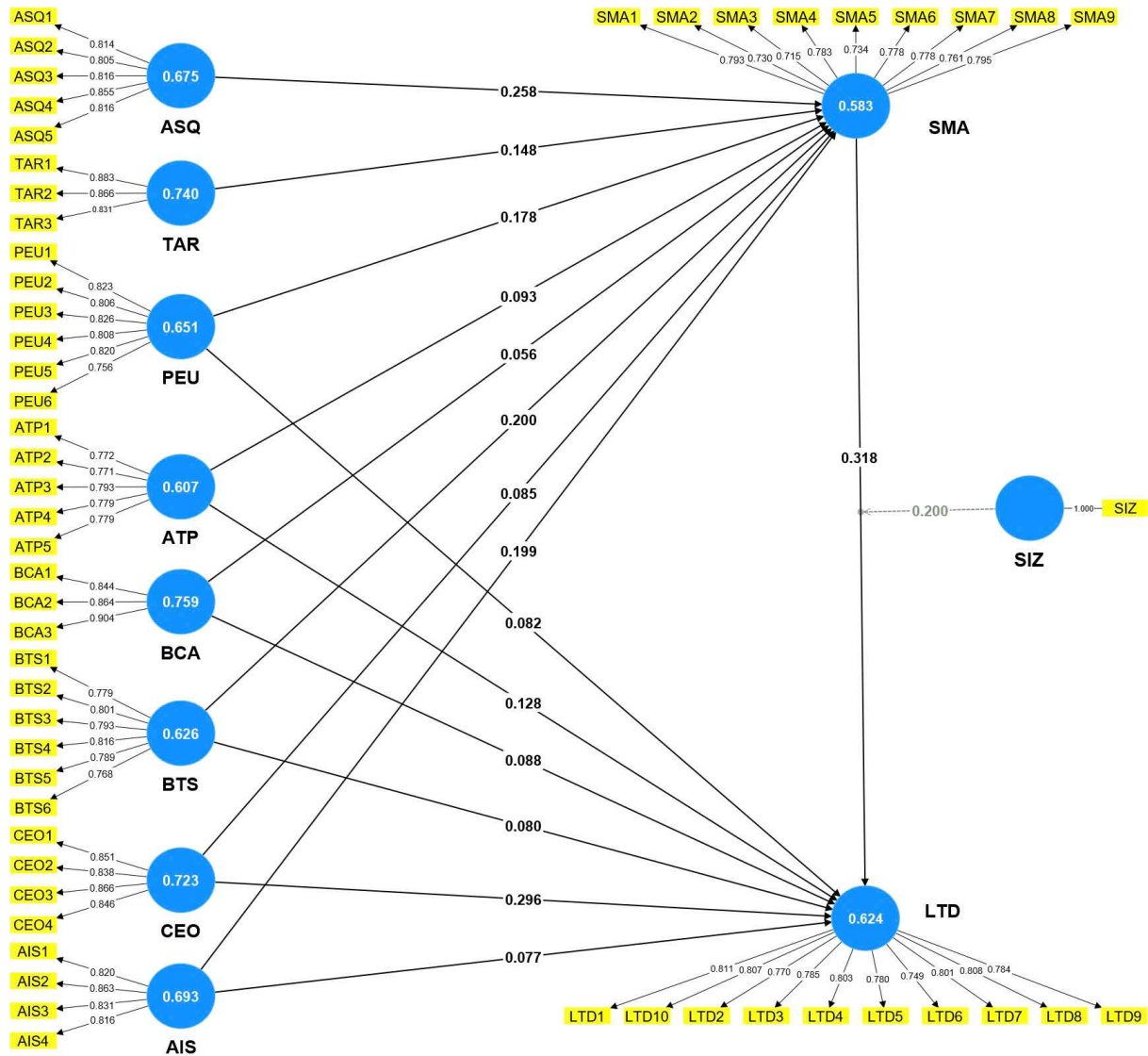


Figure 2. Path model based on SMARTPLS 4.0

lows: above 0.67 is good, from 0.33 to 0.67 is average, and from 0.19 to 0.33 is weak. Therefore, the research model demonstrates strong explanatory power, indicating that the independent variables explain 71.2% of the variation in the variable SMA. The remaining 28.8% may come from factors outside the model or random errors in the measurement process. The adjusted R^2 reached a value of 0.712. R^2 value is evaluated as follows: above 0.67 is good, from 0.33 to 0.67 is average, and from 0.19 to 0.33 is weak. Therefore, the research model shows strong explanatory power, indicating that the independent variables in the model explain 71.2% of the variation in the SMA variable. The remaining (28.8%) may come from factors outside the model or random errors in the measurement process.

5. DISCUSSION

The research findings indicate that PEU, ATP, BTS, ASQ, ATR, AIS, CEO, and BCA significantly influence SMA and LTD. Moreover, the results confirm that SIZ plays a moderating role in the relationship between SMA and LTD, suggesting that the effectiveness of SMA in supporting investment decision-making may vary depending on organizational scale.

These findings are consistent with the stated research objectives, validating the proposed research model and hypotheses. The study successfully meets its aim of identifying key drivers of SMA adoption and understanding how these techniques contribute to more informed and strategic investment decisions within Vietnamese manufacturing enterprises.

5.1. Impact of PEU, ATP, AIS, BTS, TAR, BCA, CEO, ASQ on SMA and LTD

The results indicate that Perceived Environmental Uncertainty (PEU) positively influences SMA adoption. This finding is consistent with prior studies by Pavlatos and Kostakis (2015) and Oyewo (2022), which suggest that in volatile environments, businesses tend to apply SMA to mitigate risks and support investment decision-making. In the context of Vietnam, characterized by fluctuations in raw material prices, supply chain disruptions, and fre-

quent changes in regulations, to limit this situation, enterprises apply SMA to enhance the adaptability and risk management of companies, in which environmental instability plays a driving factor. The study comments are also consistent with previous research by Nguyen et al. (2023). PEU also positively impacts investment decision-making (LTD), reflecting that under uncertain conditions, businesses rely more on strategic management tools to analyze risks, assess market trends, and make appropriate investment choices.

Applied Technology (ATP) has a positive impact on SMA adoption, consistent with the findings of Abdel-Kader and Luther (2008). Technological advancement facilitates faster data processing, strengthens interdepartmental communication, and enhances risk monitoring and control. The availability of real-time data through modern systems supports timely and accurate decision-making. ATP also positively contributes to investment decisions, enhancing firms' analytical, planning, and performance evaluation capabilities.

Business Strategy (BTS) also influences the application of SMA (Marlina et al., 2023), indicating that firms with a clear strategic orientation tend to implement SMA tools to optimize performance and seize market opportunities. This observation aligns with Ojra (2014), who found that pioneering firms often invest in SMA to maintain a competitive edge. BTS also positively affects investment decision-making, serving as a guiding framework for setting long-term goals and prioritizing investment initiatives. However, as emphasized by Kourdi (2003), achieving long-term investment objectives requires integrating multiple factors such as technological innovation, operational efficiency, and scale expansion, not relying on strategy alone.

Accounting Staff Qualification (ASQ) emerges as the most influential factor affecting the adoption of SMA, which is in line with the studies by Rasheed and Siddiqui (2019) and Ly and Hung (2024). Highly qualified accounting personnel better understand the purpose of SMA and are more capable of implementing it accurately and effectively. This contributes to improved analysis, cost control, and decision-making processes within the organization, underscoring the pivotal role of human capital in strategic accounting transformation.

Risk-taking Tendencies (TAR) have a positive influence on SMA adoption, reflecting that firms with greater risk tolerance tend to be more proactive in using strategic tools to anticipate and respond to environmental uncertainty. Liem and Hien (2020) support this result, noting that enterprises operating in highly dynamic markets adopt SMA to improve resilience, cost control, and competitive advantage.

Accounting Information Systems (AIS) enable SMA implementation (Nga, 2020) and positively influence investment decision-making. This finding supports studies by Fitriati and Mulyani (2015) and Oladele et al. (2023), which emphasize that efficient AIS enhances the quality of accounting information, supports internal control, and improves decision-making. In the context of manufacturing firms in Central Vietnam, AIS facilitates market trend forecasting, cost-benefit analysis, and strategic investment planning aligned with organizational goals.

CEO characteristics significantly affect both SMA adoption and investment decisions. This supports the study by Ngoc (2023), which emphasizes the central role of leadership in shaping strategic direction and promoting SMA integration. CEOs with strong leadership and strategic vision foster an environment conducive to SMA application and more effective investment planning. Rasheed and Siddiqui (2019) also highlight that managerial competence is foundational in driving strategic initiatives and integrating SMA into organizational processes.

The benefit-cost relationship (BCA) has a positive influence on SMA adoption, in line with the study by Tan (2021), which shows that when managers perceive the benefits of SMA as outweighing the associated costs, they are more likely to support its implementation. Significantly, BCA strongly impacts investment decision-making, supporting the cost-benefit theory of Prest and Turvey (1965), which underscores the importance of evaluating trade-offs in strategic decisions. Carpentier et al. (2005) further argue that optimizing cost and decision-making time is crucial for sustaining competitiveness in dynamic markets. Therefore, BCA enhances rational investment choices and contributes to sustainable competitive advantage.

5.2. Impact of the adoption of SMA on LTD

The hypothesis testing results reveal that applying SMA directly and meaningfully impacts investment decision-making (LTD). This underscores SMA's crucial role in supporting strategic and forward-looking decisions within organizations. This finding aligns with Shil and Das (2018), who emphasized that techniques such as Just-In-Time (JIT), the Balanced Scorecard (BSC), and target costing positively influence the quality and effectiveness of investment decision-making.

In the Vietnamese context, Anh et al. (2022) further affirm the importance of integrating SMA into strategic planning. These tools not only strengthen cost evaluation and control mechanisms but also offer valuable analytical and forecasting capabilities, thereby enhancing the overall quality and reliability of investment decisions.

5.3. Impact of PEU, ATP, AIS, BTS, TAR, BCA, CEO, and ASQ on LTD through SMA application intermediary

Based on quantitative analysis, this study confirms that factors such as PEU, ATP, AIS, BTS, TAR, BCA, CEO, and ASQ all significantly influence LTD through the mediating role of SMA application.

Notably, ASQ is identified as the most impactful factor, reinforcing the view that highly qualified accountants play a pivotal role in effectively applying SMA tools to support strategic planning. This finding aligns well with Nguyen and Nguyen (2021) who emphasized that accountants' qualifications and awareness of environmental uncertainty enhance SMA adoption in volatile business contexts.

Conversely, BCA, while still relevant, shows the weakest indirect effect. This suggests that although cost-effectiveness considerations are important in managerial thinking, they are not decisive in SMA implementation or in ensuring the effectiveness of SMA in investment decision-making (Tan, 2021).

Furthermore, BTS and TAR also play prominent roles in promoting flexible and effective SMA ap-

plications under dynamic market conditions. This finding is consistent with the views of Hung (2023) and Liem and Hien (2020), highlighting that a clear strategy combined with proactive risk management not only enables effective use of strategic accounting information but also fosters an information-driven decision-making culture, an essential foundation for sustainable growth and long-term competitive advantage.

In addition, AIS, ATP, and CEO are identified as factors that influence investment decisions through the mediating role of SMA application. This result is further supported by expert interviews, demonstrating consistency between quantitative data and practical insights regarding the crucial role of these factors in the effective deployment of SMA.

5.4. Impact of SIZ moderator variable on PEU, ATP, AIS, BTS, TAR, BCA, CEO, ASQ, and LTD

Findings from the study reveal that SIZ, the moderating variable, significantly influenc-

es LTD through the mediating role of SMA. Specifically, the relationship between SMA and LTD demonstrates a statistically significant impact, reinforcing the critical role of SMA in supporting enterprises in making effective investment decisions.

At the same time, SIZ also positively influences the adoption of SMA. Larger enterprises typically have more favorable conditions regarding resources, management systems, and technological capabilities, which enhances their ability to implement SMA more effectively. Better application of SMA improves the quality and strategic alignment of investment-making decisions.

Thus, it can be affirmed that SIZ affects the quality of investment decisions directly and indirectly through the adoption of SMA. This underscores the importance of scaling up and strengthening strategic management capabilities to enhance decision-making effectiveness amid increasingly fierce competition and a continuously evolving business environment.

CONCLUSION

This study investigated the factors influencing the application of SMA and the impact of this application on investment decision-making within Vietnamese manufacturing enterprises. The primary objective was to provide empirical evidence on these relationships to support theory and practice.

The study identified that SMA application is significantly and positively influenced by eight key factors: accounting staff quality, business strategy, accounting information systems, perceived environmental uncertainty, risk-taking tendencies, applied technology, managerial characteristics, and cost-benefit analysis, with accounting staff quality having the most decisive impact. More importantly, the study found that applying SMA has a strong, positive, and direct effect on the effectiveness of investment decisions. Firm size also moderates the relationship between SMA and investment decisions, with the benefits of SMA application being more pronounced in larger enterprises.

Based on these findings, the study proposes practical implications to help businesses enhance their capacity to apply SMA to support investment decision-making better. Specifically, enterprises should focus on developing the professional qualifications of accounting staff while ensuring close coordination between business strategy and accounting information systems to optimize SMA application. Additionally, regulatory agencies and policymakers should promote training programs to improve the professional capabilities of accounting personnel and support the adoption of modern technologies to enhance strategic management effectiveness in manufacturing enterprises.

Further research could expand the scope of investigation to other industries or more diverse cultural contexts within Vietnam to assess the applicability and generalizability of the research findings.

AUTHOR CONTRIBUTIONS

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APPENDIX A

Table A1. Scale measuring factors in the research model

Observational Variable	Measurement Scale	Source
Perceived Environmental Uncertainty (PEU)		
PEU1	The company finds it difficult to predict changes in the legal and economic environment.	Sumkaew (2016), Expert's recommendation
PEU2	It is difficult to predict customer demand and preferences.	
PEU3	The quality and improvement of competitors' products threaten the company's growth.	
PEU4	Intense competition over product prices threatens the company's survival.	
PEU5	New competitors enter the market every day.	
PEU6	Consumers are susceptible to product prices.	
Applied Technology (ATP)		
ATP1	Technology optimizes employee workflows and manages information effectively.	Al-Omiri and Drury (2007), Azudin and Mansor (2018)
ATP2	The company's products are produced based on advanced technology	
ATP3	Product quality is tested/evaluated using computers	
ATP4	The accounting information system is computerized	
ATP5	The company invests in software to support accounting tasks.	
Benefit Cost Analysis (BCA)		
BCA1	The company is willing to invest in costs, facilities, technology, and training resources.	Tan (2021), Expert's recommendation
BCA2	The benefits derived outweigh the costs when the company applies cost-management accounting	
BCA3	The cost of management accounting is justified by the benefits it brings to the company.	
Accounting Staff Qualification (ASQ)		
ASQ1	Accounting staff supports the development of the company's business strategy.	Soa et al. (2022), Expert's recommendation
ASQ2	Accounting staff have at least a bachelor's degree in accounting or finance.	
ASQ3	Accounting staff are familiar with strategic management accounting techniques.	
ASQ4	Accounting staff can analyze business issues and relate them to financial results and other strategies.	
Risk Acceptance Trends (ATR)		
ATR1	When faced with uncertainty in decision-making, the company tends to adopt a cautious approach, waiting for the right time to minimize risk from mistakes.	Liem and Hien (2020), Expert's recommendation
ATR2	Managers need to take bold actions and have a daring personality to achieve company goals.	
ATR3	The company is willing to face risks and failures when applying modern management accounting techniques.	
Business Strategy (BTS)		
BTS1	Expanding distribution channels for domestic and international markets.	Marlina et al. (2023), Expert's recommendation
BTS2	The company is always a pioneer in designing and promoting products.	
BTS3	The company produces products based on customer requirements.	
BTS4	Focus on post-sales service policies.	
BTS5	Investing in products and technology and creating a future ecosystem.	
Manager Characteristics (CEO)		
CEO1	The owner/manager understands strategic management accounting techniques.	Ngoc (2023), Expert's recommendation
CEO2	The owner/manager highly values the usefulness of strategic management accounting techniques for the company.	
CEO3	The owner/manager is willing to incur costs to apply strategic management accounting techniques.	
CEO4	The owner/manager provides equipment for staff to implement and apply strategic management accounting.	
CEO5	The owner/manager supports staffing (hiring skilled accounting staff) to implement and apply strategic management accounting.	
Accounting Information System (AIS)		
AIS1	A high-quality accounting information system can promote and encourage the adoption of new management accounting methods, including strategic management accounting.	Nga (2020), Expert's recommendation
AIS2	AIS data is always available every quarter and provides timely information for the company's accounting activities	
AIS3	AIS provides information that contributes to the implementation of life-cycle cost analysis.	
AIS4	AIS provides information supporting strategic decision-making and control.	

Table A1 (cont.). Scale measuring factors in the research model

Observational Variable	Measurement Scale	Source
Strategic Management Accounting (SMA)		
SMA1	Attribute cost techniques	Cadez and Guilding (2008), Expert's recommendation
SMA2	Target cost techniques	
SMA3	Quality cost techniques	
SMA4	Value chain cost	
SMA5	Benchmarking	
SMA6	Balanced Scorecard	
SMA7	Strategic pricing	
SMA8	Competitor position monitoring	
SMA9	Customer profit analysis	
Investment Decisions (LTD)		
LTD1	Investment in new production systems	Virlics (2013), Kemuma(2014), Expert's recommendation
LTD2	Expanding the current scale to increase existing production capacity	
LTD3	Replacing old production lines to improve operational efficiency and protect the environment	
LTD4	Replacing equipment to enhance production capacity	
LTD5	Investing in research and development to stay ahead in technology and new products	
LTD6	Focusing on adding new industries and products	
LTD7	Investing in stocks and bonds	
LTD8	Investing in acquiring other companies to expand scale and market share	
LTD9	Investing in brand development and market expansion	
LTD10	Investing in information technology and digital transformation	

APPENDIX B

SURVEY FORM

Dear Sir/Madam.

Our current research project, “Factors Influencing the Application of Strategic Management Accounting Techniques and Their Impact on investment Decision Making in Manufacturing Enterprises in Vietnam,” aims to determine the factors that influence the use of strategic management accounting techniques and how they affect manufacturing enterprises’ investment decision-making. We will use your insightful comments as a starting point to improve this research. We guarantee that any data gathered during the interview, including your personal information, will be kept private and used only for research.

I. COMPANY INFORMATION

1. Company Name
2. Company Address
3. Main Production Sector
 - Mechanical Engineering and Machine Manufacturing
 - Textile and Footwear
 - Chemical Production and Building Materials
 - Electricity and Gas Production

- Electronic Components and Equipment Manufacturing
- Pharmaceutical and Medicinal Product Manufacturing
- Other

4. Number of Employees (persons)

- 100
- 100-150
- > 150

5. Capital Scale (billion VND)

- 50 – 100
- 100 – 150
- 150 – 200
- > 200

II. RESPONDENT INFORMATION

1. Full Name:

2. Education Level:

- Bachelor's Degree
- Postgraduate Degree

3. Position:

- Legal Representative
- Senior Management
- Middle Management

4. Area of Work:

- Management
- Management Accounting
- Auditing

III. SURVEY CONTENT

1. OVERVIEW OF LINKED RESEARCH ON THE SUBJECT

Tayles (2011) defined strategic management accounting as the process of supplying and evaluating rival data to assist in the creation and tracking of business plans, while Langfield-Smith (2008) highlights the significance of strategic management accounting for competitor activity. Cost techniques, planning, control, evaluation, customer accounting, competition accounting, and strategic decision-making are the five primary categories of strategic management accounting approaches. The use of these methods has also been found to be pertinent to businesses' long-term decision-making.

2. SURVEY CONTENT

Question 1: Please indicate your level of agreement regarding the following statements related to your enterprise. For each statement, please circle only one number from 1 to 5. Each level is defined as follows:

1: Strongly disagree; 2: Disagree; 3: No opinion; 4: Agree; 5: Strongly agree.

Table B1. Measurement scales for factors influencing the application of strategic management accounting

Symbol	Scale	Answer				
		1	2	3	4	5
PEU	Perceived Environmental Uncertainty					
PEU1	It is challenging for companies to anticipate shifts in the legal and economic landscape.					
PEU2	Price is a highly important factor to consumers.					
PEU3	The expansion of enterprises is threatened by the quality and innovation of products produced by competitors.					
PEU4	Every day, new rivals enter the market to compete.					
PEU5	Demand and preferences from customers are difficult to forecast.					
PEU6	Businesses' ability to survive is threatened by fierce competition over product prices.					
ATP	Applied Technology					
ATP1	Employee procedures can be optimized, and information can be efficiently managed by technology					
ATP2	The company uses cutting-edge technologies in the production of its goods.					
ATP3	Computers run the accounting information system.					
ATP4	Computers are used for quality checks and evaluations of products.					
ATP5	The business purchases software to help with accounting duties.					
BCA	Benefit-Cost					
BCA1	The expense of purchasing technology and equipment for managerial accounting is reasonable given the advantages it offers the business.					
BCA2	Using advanced managerial accounting approaches has more advantages than disadvantages.					
BCA3	When using these strategies, the business owner's gains are equal to the consultation fees paid to organizations and specialists.					
ASQ	Competency level of accounting staff					
ASQ1	The accounting team assists in the formulation of the business plan for the organization.					
ASQ2	At least one bachelor's degree in accounting or finance is held by accounting staff members.					
ASQ3	Advanced managerial accounting methods are well-known to the accounting team.					
ASQ4	Accounting personnel are capable of analyzing corporate problems and connecting them to other strategies and financial outcomes.					
ASQ5	Professional training is often provided to accounting staff.					
TAR	Tendency to accept risk					
TAR1	The business frequently takes a cautious approach when faced with uncertainty in decision-making, waiting for the ideal opportunity to reduce the likelihood of making poor choices.					
TAR2	The business is prepared to take chances and experience setbacks while using contemporary managerial accounting methods.					
TAR3	Managers must behave boldly and possess a daring attitude to accomplish the company's goals.					
BTS	Business strategy					
BTS1	Extending product distribution networks in both home and foreign markets.					
BTS2	When it comes to creating and marketing products, the company is constantly at the forefront.					
BTS3	The business manufactures goods under client specifications.					
BTS4	Emphasis on after-sales service policies.					
BTS5	Putting money into goods, technology, and developing a future ecosystem.					
CEO	Characteristics of the manager					
CEO1	The use of SMA procedures is closely monitored by senior leadership.					
CEO2	Senior management equips staff members with the tools they need to adopt and implement SMA techniques.					
CEO3	The use of these strategies is continuously encouraged by senior leadership.					
CEO4	The senior leadership is dedicated to making sure there are enough resources available for the use of SMA approaches.					

Table B1 (cont.). Measurement scales for factors influencing the application of strategic management accounting

Symbol	Scale	Answer				
		1	2	3	4	5
AIS	Accounting information system					
AIS1	The adoption of innovative managerial accounting practices, such as strategic management accounting, can be supported and encouraged by an excellent accounting information system (AIS).					
AIS2	To carry out the business's accounting operations, AIS data is regularly made available every quarter.					
AIS3	The information that AIS offers helps the business's lifecycle cost analysis function.					
AIS4	The IT system provides information to support the control and strategic decision-making of the enterprise.					

Question 2: Please indicate the level of application of SMA techniques by circling only one number from 1 to 5 according to the following scale:

1: Not applied at all; 2: Rarely applied; 3: Occasionally applied; 4: Frequently applied; 5: Very frequently applied.

Table B2. Strategic management accounting techniques and their level of application

Symbol	SMA techniques	Level of application				
		1	2	3	4	5
SMA1	Attribute Costing Technique This technique identifies the costs of each activity and allocates those costs to products or services based on the level of usage of each activity.					
SM2	Target Costing Technique Cost management is used to quantify and minimize the costs of a product during the design and development process. Target Cost = Target Selling Price – Target Profit.					
SMA3	Quality Costing Technique This technique measures the costs of activities related to product quality, including preventing non-conforming products, inspecting product quality, and handling defective products.					
SMA4	Value Chain Costing This technique allocates costs to activities that help the company assess and develop its strategic position, analyze its location, and understand competitive costs.					
SMA5	Benchmarking This involves comparing the operational efficiency of the company with the best firms in the same industry or in different industries.					
SMA6	Balanced Scorecard This measures the company's performance based on four perspectives: financial, customer, internal processes, and learning and growth.					
SMA7	Strategic Pricing This involves calculating costs for various strategies of the company and assessing the impact of these strategies on the company's effectiveness and profitability.					
SMA8	Monitoring Competitive Position This technique involves monitoring the company's competitive position within its business sector and evaluating the strengths and weaknesses of the company in relation to competitors in the market.					
SMA9	Customer Profitability Analysis This technique calculates the costs and revenues associated with each customer to determine that customer's contribution to the company's profit.					

Question 3: Please indicate your level of agreement regarding the following long-term decisions related to your company. For each item, please circle only one number from 1 to 5. Each level is defined as follows: 1: Strongly disagree; 2: Disagree; 3: No opinion; 4: Agree; 5: Strongly agree.

Table B3. Types of investment decisions and level of application

Symbol	Scale	Answer				
		1	2	3	4	5
LTD	Investment Decision					
LTD1						
LTD2	The decision to invest in a new production system.					
LTD3	The company is expanding its existing scale to increase current production capacity.					
LTD4	The company is replacing old production lines to improve operational efficiency and protect the environment.					
LTD5	The company is replacing equipment to enhance production capacity.					
LTD6	The company is investing in research and development to remain at the forefront of technology and new products.					
LTD7	The company is focusing on adding new industries and products.					
LTD8	The company is investing in the acquisition of other businesses to expand its scale and market share.					
LTD9	Investment in stocks and bonds.					
LTD10	Investment in brand and market development.					

Question 4: Please indicate the difficulties or experiences encountered when applying advanced managerial accounting techniques in your company.

Question 5: In the future, your company plans to apply additional advanced managerial accounting techniques, which are?

If you would like to receive the survey results, please contact us via email: maitquynnhu@duytan.edu.vn. Thank you for taking the time to participate in the interview. Wishing you good health and success!

APPENDIX C

Table C1. Descriptive statistics about the samples

Demographic Category	Frequency	Percentage
Survey participants	N = 650	
Business Owner/Legal Representative	85	13
Senior Manager	323	49.7
Middle Manager	242	37.3
Company Size	N = 650	
5-100 billion VND	258	39.7
151-200billion VND	189	29.1
>200 billion VND	121	18.6
Workforce Size	82	12.6
<100 employees	193	29.7
100-150employees	235	36.2
>150 employees	222	34.2
Primary Industry	N = 650	
Mechanical Engineering, Machinery	93	14.3
Textile, Footwear	92	14.2
Consumer Goods Manufacturing	102	15.7
Chemicals, Building Materials	90	13.8
Electronics Manufacturing	91	14
Energy Industry	85	13.1
Seafood Processing	97	14.9
Educational Level	N = 650	
Undergraduate	396	60.9
Postgraduate	254	39.1

Table C2. SMA application level

SMA	Minimum	Maximum	Average	Standard Deviation
SMA1	2	5	3.7	0.627
SMA2	2	5	3.67	0.671
SMA3	2	5	3.69	0.641
SMA4	2	5	3.64	0.599
SMA5	2	5	3.73	0.644
SMA6	2	5	3.69	0.599
SMA7	2	5	3.65	0.599
SMA8	1	5	3.68	0.651
SMA9	2	5	3.7	0.607

Table C3. Variance inflation coefficient statistics

Observed Variables	VIF	Observed Variables	VIF
AIS1	1.886	PEU3	2.307
AIS2	2.257	PEU4	2.053
AIS3	1.941	PEU5	2.207
AIS4	1.924	PEU6	1.783
BCA1	1.793	ASQ1	2.140
BCA2	2.053	ASQ2	2.007
BCA3	2.428	ASQ3	2.036
BTS1	1.840	ASQ4	2.421
BTS2	2.034	ASQ5	2.202
BTS3	1.944	SIZ	1.000
BTS4	2.131	TAR1	1.613
BTS5	1.877	TAR2	2.394
BTS6	1.820	TAR3	2.237
CEO1	2.123	SMA1	2.181
CEO2	2.034	SMA2	1.875
CEO3	2.322	SMA3	1.718
CEO4	2.086	SMA4	2.071
LTD1	2.423	SMA5	1.836
LTD10	2.695	SMA6	2.068
LTD2	2.167	SMA7	2.067
LTD3	2.302	SMA8	2.027
LTD4	2.409	SMA9	2.221
LTD5	2.188	ATP1	1.639
LTD6	1.982	ATP2	1.692
LTD7	2.619	ATP3	1.776
LTD8	2.602	ATP4	1.748
LTD9	2.362	ATP5	1.682
PEU1	2.173	SIZ x SMA	1.000
PEU2	2.088		