



Research Article

THE RELATIONSHIP BETWEEN STRATEGIC MANAGEMENT ACCOUNTING AND OPERATIONAL PERFORMANCE: EMPIRICAL EVIDENCE FROM ENTERPRISES IN SOUTHEAST VIETNAM

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Abstract

Strategic management accounting (SMA) is a data system for management accounting to assist managers in planning, implementing and evaluating an organization's strategy. However, up to now, there are several completed and systematic studies on the affecting factors and the interactions between the implementation of strategic management accounting as well as operational performance of enterprises. Lack of empirical evidences is a challenging policy makers and business managers. This study employs primary data from a survey of 352 enterprises in Southeast Viet Nam using the Partial Least Squares-Structural Equation Modeling for data analysis and interpretation. The findings of the study revealed that there is a positive linear relationship between implementation of strategic management accounting and operational performance of enterprises. Factors affecting the implementation of strategic management accounting include: enterprise size, applied technology level, management hierarchy, having business strategy, and competition on market.

Keywords: Strategic management accounting; Operational performance; the Partial Least Squares-Structural Equation Modeling; Southeast Vietnam

INTRODUCTION

Strategic management accounting (SMA) is a management accounting information system to assist business managers in planning, implementing and evaluating an organization's strategy. However, so far, there have not been many complete and systematic studies on the influencing factors and the interactions between the implementation of SMA and the performance of enterprises. The study of the above relationship is of practical significance, contributing to the development and improvement of operational efficiency for enterprises. This study focuses on (i) Determining the factors affecting the implementation of SMA and its influence on the performance of enterprises; (ii) Develop a quantitative analysis model of such relationship; (iii) Management implications from study results. There was a survey of 352 enterprises in the Southeast Vietnam to establish practical basis for the measurement model. The Southeast Vietnam consists of 5 provinces and a city: Ho Chi Minh City, Binh Phuoc, Tay Ninh, Binh Duong, Dong Nai, Ba Ria - Vung Tau with a total natural area of 23,564 km², accounting for 7.3% of area of the whole country, the population of the region is more than 17.8 million people, accounting for 18.5% of the population of the country. The Southeast Vietnam is the country's leading economic center and has regional and international influence. Economic scale and budget revenue are ranked first in the country, accounting for 33% of GRDP, accounting for a large proportion (50%) of industrial production value and total import and export turnover of the country. GRDP per capita is 2 times higher than the national average. The region has the highest urbanization rate in the country (62.8%); the region's economic growth rate is always about 1.2–1.4 times higher than the national average growth rate.

The Southeast region has an average of 17.4 enterprises operating per 1000 people (the national average is 7.9), the highest among 06 socio-economic regions of the country (Nguyen Thanh Hoa, 2020). Due to the large geographical distance, the study selects a sample of 3 provinces and a city in the Southeast region: Ho Chi Minh City, Binh Duong and Dong Nai, these localities have larger numbers of active enterprises compared to other provinces in the region.

Theory overview

Foundation theory

Institutional theory of organizations: Institutional Theory of Organizations is an adaptive change process framework. It examines the impact of external environmental factors and market conditions on organizational change and growth (Barnett and Carroll, 1995). Applying institutional theory, Burns and Scapens (2000) considers the change in management accounting as a change in the rules and habits of the organization. According to Meyer and Rowan (1977) formal and informal management accounting changes are used to imply that change is not specifically directed (formal change), but can develop from actions taken. The intention of individuals to enact and change the habits of the organization (informal change). Formal change occurs through the introduction of new management accounting systems and techniques which, in turn, cause the organization to change including its operations. Thus, management accounting practice includes formal practices such as valuation systems, pricing techniques, financial systems, performance appraisal systems, and strategic accounting (Smith *et al.*, 2008). This theory explains the implementation of SMA applied by businesses.

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Contingency theory: Contingency Theory holds that an organization's performance depends on its foundation. That is, whether an organization operates effectively depends on its ability to cope with the uncertainty of the business environment (Morton and Hu, 2008). The traditional school of thought holds that similar organizations can share an optimal structure for all (Weber, 1947). However, in reality there is always a significant change in the organizational structure. Traditional theory, by contrast, today denies that there can be one best and only one for all. Otley (1980) applied contingency theory to management accounting practice and explained that there is no single standard accounting system that can be applied to all organizations. This theory considers certain influencing factors that will assist management in deciding to choose an appropriate management accounting practice. These factors can be changes in the technology and infrastructure of an organization. The contingency view suggests that an effective management accounting system should accommodate both internal and external factors (Battilana and Casciaro, 2012). Internal factors can be linked to similar ownership structures or management teams and key personnel; external factors such as technological change, competition and market forces. Contingency theory is relevant to this study, where it is important to explain how the management accounting system should match between the external and internal factors of the organization.

Strategic management accounting and factors affecting the implementation of strategic management accounting

Management accounting: The field of accounting includes three main areas: financial accounting, management accounting, and auditing. In particular, management accounting involves creating accounting information for management and employees to assist them in doing their work (Caplan, 2006). Management accounting is an important tool to provide appropriate information for managers to make business decisions and it is not only widely applied in multinational business organizations around the world. World but also in medium-sized enterprises in developing countries. Moreover, management accounting has been playing an important role in business activities of enterprises (Ndwiga, 2011). According to Kamilah and Zabri (2018), the implementation of management accounting is the building of an information system in an organization to provide reliable information to add value to customers and the organization, through which, good performance Management accounting will facilitate effective decision making and assist organizations in promoting business activities.

Strategic management accounting: Strategic management accounting (SMA) is a management accounting information system that includes both financial and non-financial information collected mainly from outside for a long period of time to support serves managers in planning, implementing and evaluating the organization's strategy (Tillman and Goddard, 2008; Langfield-Smith, 2008; CIMA, 2012; Ojua, 2016). Three different concepts of strategic management accounting have emerged. First, integrate strategic ideas into management accounting by applying the strategy and seeing what management accounting information can be used to support the strategy. Second, it is designed to align management accounting with management for strategic positioning. Third, SMA is just a representative name grouping together many modern methods in management accounting

developed in association with strategic (Roslender and Hart, 2010).

Factors affecting the implementation of strategic management accounting: Since the early 1970s, many studies around the world have identified the factors affecting the implementation of SMA in enterprises, including: Business strategy building (Miles *et al.*, 1978; Fisher, 1995; Hoque, 2004; Cinquini and Tennuci, 2010; Ojra, 2014); Market competition level (Gordon and Miller, 1976; Ezzamel, 1990; Wu and Boateng, 2010; Nair and Nian, 2017; Kordlouie and Hosseinpour, 2018); enterprise size (Cinquini and Tennucci, 2010; Fowzia, 2011; Lucas *et al.*, 2013; Ojra, 2014; Nair and Nian, 2017; Ahmad and Zabri, 2018; Godil *et al.*, 2019); Management hierarchy (Williams and Seaman, 2001; Adde – Kabel and Luther, 2008; Soobaroyen and Pourundersing, 2008); Technology level (Cadez and Guilding, 2008; Nyamori *et al.*, 2001; Abernethy and Bouwens, 2005, Aver *et al.*, 2009; Adu-Gyamfi *et al.*, 2020).

Based on the contents mentioned above related to study results, authors proposed some following hypotheses:

- H1: Market competition level affects positively on the implementation of SMA.
- H2: Management hierarchy affects positively on the implementation of SMA.
- H3: Enterprise size affects positively on the implementation of SMA.
- H4: Technology level affects positively on the implementation of SMA.
- H5: Business strategy building affects positively on the implementation of SMA.

Strategic management accounting and operational performance

Operational performance: Operational performance (OPER) encompasses three specific areas of the organizational performance: (a) financial performance (profit, return on assets, return on investment, etc.); (b) product market operations (sales, market share, etc.); and (c) shareholder return (total shareholder return, value added). Organizational performance refers to how well an organization achieves its vision, mission and goals (Richard *et al.*, 2009). According to the Business Ratios Guidebook (2020), operational performance (OPER) is measured by the net profit margin on sales (Return on sales, ROS). According to Liu *et al.* (2011), the ratio of net return to total assets (ROA) is also a measure of operational performance of enterprises because assets are used to support business activities. Return on equity (ROE) is also a measure of operational performance (Carter and Hones-Evan, 2000; Sylvester and Austin; 2019). However, as the organizational structure as well as production and business activities of enterprises become more complex, the concept of OPER becomes more difficult to define and evaluate. OPER is based on the investor's view that the value they receive from an investment in an enterprise includes both financial and non-financial value (Simon, 1976; Kaplan and Norton, 1996). Suanmali *et al.* (2011) developed a set of OPER measurement standards for textile manufacturing enterprises which is a set of measurement indicators on four aspects: Finance, customers, internal processes, and training and development. In this study, the constituent elements of OPER include: Production cost norm per product unit; Profit after income tax; Number of

satisfied customers about the enterprise; Enterprise's market share.

The relationship between the implementation of SMA and operational performance: Since 2010, many empirical studies have shown that when enterprises make good use of SMA, the performance of enterprises will be higher (Al-Mawali *et al.*, 2012; Aksoylu and Aykan, 2013; Alsoboa, 2015; Turner *et al.*, 2017; Almari, 2018; Emiaso and Egbunike, 2018; Adu-Gyamfi *et al.*, 2020). In addition, according to Ojra's research on companies in Palestine, business strategy and competition level have a positive impact on operational performance (Ojra, 2014). Based on the above-summarized study results, the authors propose further following hypotheses:

- H6: Implementation of SMA affects positively on operational performance
 H7: Competition level on market affects positively on operational performance
 H8: Having business strategy affects positively on operational performance

RESEARCH MODEL

This study aims to affirm the current literature and expand it to some extent. It provides also empirical evidence to the current literature as well as managerial implications related to SMA implementation and operational performance. Previous studies highlight insights into the factors that influence SMA implementation or its impact on operational performance and measure relationships using different models, independent quantitative models such as exploratory factor analysis or regression analysis. Little attention was paid to the complete framework of the relationship between SMA implementation and operational performance that leaves a room for this study to fill in. Therefore, this study expands the literature to the above extent by using a Structural Equation Model (SEM), evidenced from the enterprises in the Southeast Vietnam as followed:

RESEARCH METHODOLOGY

Measurement

All scales are adjusted from previous studies to fit the research context in the Southeast region. We designed three processes for surveys. First, we surveyed using the method of expert discussion with financial management experts of enterprises, including ten people with at least five years of experience working in financial management agencies. They suggested some adjustments to make sure the questionnaire was suitable for enterprises. Second, a pilot survey with 20 business owners or business managers in Ho Chi Minh City. In order to check the survey questionnaire in terms of errors and content. The sample was selected based on the respondents' willingness to participate in the study. Third, surveying enterprises in 3 provinces and a city (Ho Chi Minh City, Binh Duong and Dong Nai), enterprises have experienced in implementing SMA. A total of 370 respondents answered the questionnaire. Likert scale with five points was applied to measure all observed variables in the model. The scale is ranking from 1: "completely disagree" to 5: "completely agree". To measure the scales "Business strategy building", "Management hierarchy", "Enterprise size", "Technology level", "Market

competition level" with 20 observed variables were included in the questionnaire. The measurement factors are based on references to previous studies and were developed by the authors to suit Vietnam context based on the results of expert discussions (Gordon and Nayananan, 1984; Hoque and James, 2000; Ojra, 2014). To measure "Implementation of SMA", 5 observed variables were included in the questionnaire. The measurement elements of this scale are based on the comments of Cinquini and Tenucci (2007) and Cadez and Guiding (2008) and were developed by the authors as a result of expert discussions. To measure the scale "Operational performance", 4 observed variables were included in the questionnaire. The measurement factors for these scales are based on the study of Adu-Gyamfi *et al.* (2020). The details of the scales and observable variables are in the Appendix.

Data collection and processing

The survey was conducted for 370 enterprises in Ho Chi Minh City, Binh Duong and Dong Nai provinces are in the Southeast region. The survey was conducted from June 2018 to June 2019. After performing data processing, 352 observations were guaranteed to be relevant and used for data analysis. The research model deals with multi-relationships simultaneously, therefore the Partial Least Squares-Structural Equation Model, PLS-SEM (Anderson and Gerbing, 1988; Kline, 2011) is the best choice to apply. The structural equation model is conducted in four stages, namely (i) Scale quality test; (ii) Exploratory Factor Analysis-EFA; (iii) Confirmatory Factor Analysis-CFA and (iv) Structural Equation Modeling-SEM. The data were analyzed using SPSS and AMOS version 20.0.

RESULTS

Description of survey

Production and business fields: Among 352 enterprises surveyed, manufacturing and processing enterprises accounted for 91% of the total.

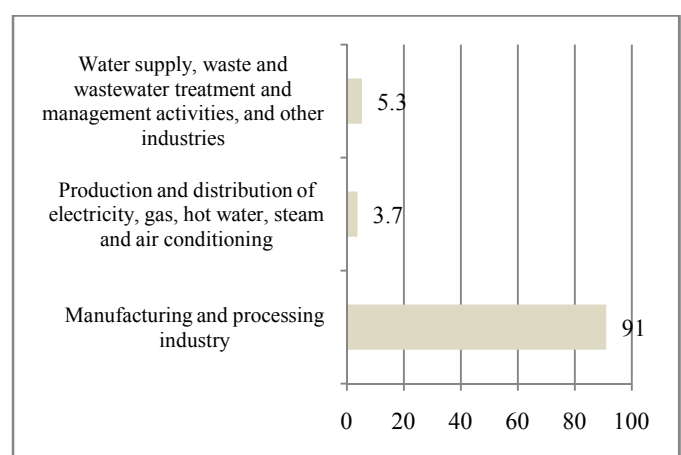


Figure 2. Production and business sectors of enterprises (%)

Capital scale: Most enterprises have capital size \leq 50 billion VND (53.4%)

Age and gender of respondents: The age group is mainly from 26-35, accounting for 49%. Male gender is 51% and female is 49%

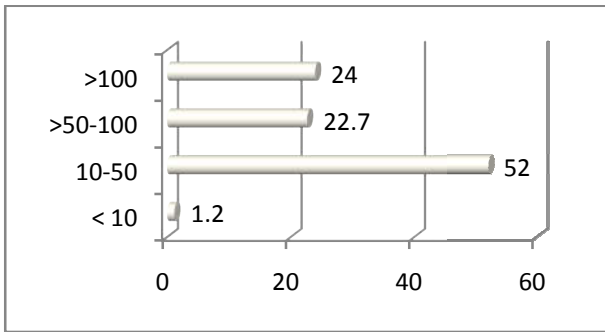


Figure 3. Enterprise capital size (Billion VND)

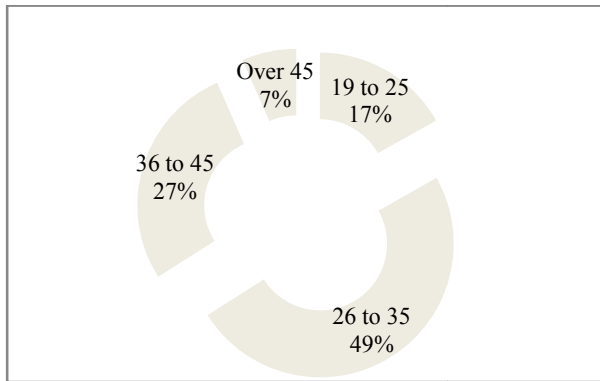


Figure 4. Age (%)

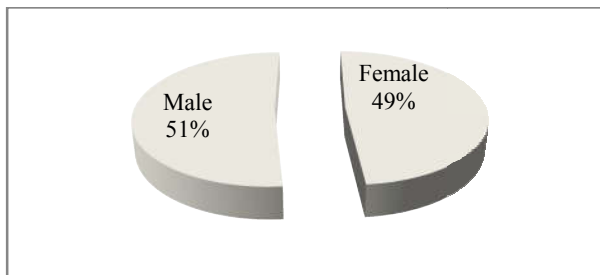


Figure 5. Gender (%)

Professional qualifications and titles of respondents: The main percentage is university (82.6%). Survey respondents are accountants (75%) and business directors/ managers (25%).

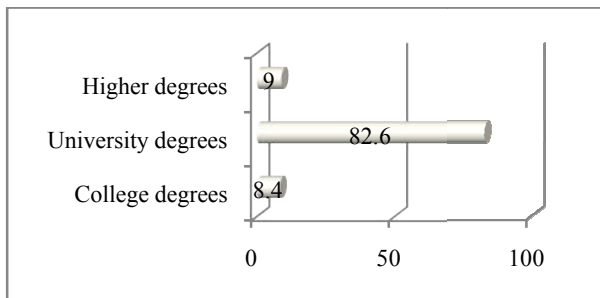


Figure 6. Qualification (%)

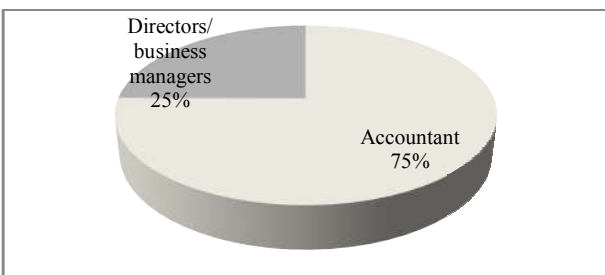


Figure 7. Title (%)

Scale reliability analysis

Table 1. Scale reliability test and rejected observable variables

SCALE	Observed variables are excluded	Cronbach's coefficient	Alpha	Conclusion
TECL	None	0.824		Good quality
SIZE	None	0.866		Good quality
BUIL	None	0.840		Good quality
COMP	COMP5	0.838		Good quality
HIER	None	0.831		Good quality
SMA	SMA5	0.846		Good quality
OPER	None	0.871		Good quality

Results of the test are presented in table 1. Accordingly, except the variables COMP5 and SMA5 are rejected, all observed variables satisfy the conditions with Alpha > 0.6 and the correlation between variable and the rest > 0,3 (Nunnally and Burnstein, 1994).

Exploratory factor analysis (EFA)

The results presented in table 2 below show that the factors affecting SMA are extracted into 5 factors corresponding to the measured variables of the theoretical model with the total variance extracted is 65.662% at the Eigenvalue of 1,855; EFA of SMA is extracted into 4 observed variables with extracted variance of 68.650% at Eigenvalue of 2,746. EFA of OPER is extracted into 4 observed variables with extracted variance of 72.139% at an Eigenvalue of 2,886. The EFA was conducted by Promax rotation method.

Table 2. Pattern Matrix

	Component						
	1	2	3	4	5	6	7
SIZE5	0.840						
SIZE2	0.831						
SIZE3	0.827						
SIZE1	0.788						
SIZE4	0.743						
HIER5		0.825					
HIER4		0.786					
HIER1		0.767					
HIER2		0.757					
HIER3		0.718					
BUIL4			0.846				
BUIL3			0.838				
BUIL1			0.799				
BUIL2			0.789				
COMP2				0.852			
COMP3				0.835			
COMP4				0.832			
COMP1				0.756			
TECL1					0.844		
TECL2					0.828		
TECL4					0.798		
TECL3					0.764		
SMA1						0.860	
SMA3						0.858	
SMA2						0.801	
SMA4						0.794	
OPER2							0.874
OPER4							0.850
OPER3							0.840
OPER1							0.833
Kaiser-Meyer-Olkin Measure (KMO)					0.833	0.816	0.830
Bartlett's Test - (Sig.)					0.000	0.000	0.000
Eigenvalues					1.855	2.746	2.886
% of Variance					65.662	68.650	72.139

Note: According to Hair et al. (2006), 0.5 < KMO < 1; Bartlett's test has significance level less than 0.05; Factor Loading coefficient of observed variables (Factor Loading) > 0.5; % of variance > 50% and Eigenvalue > 1.

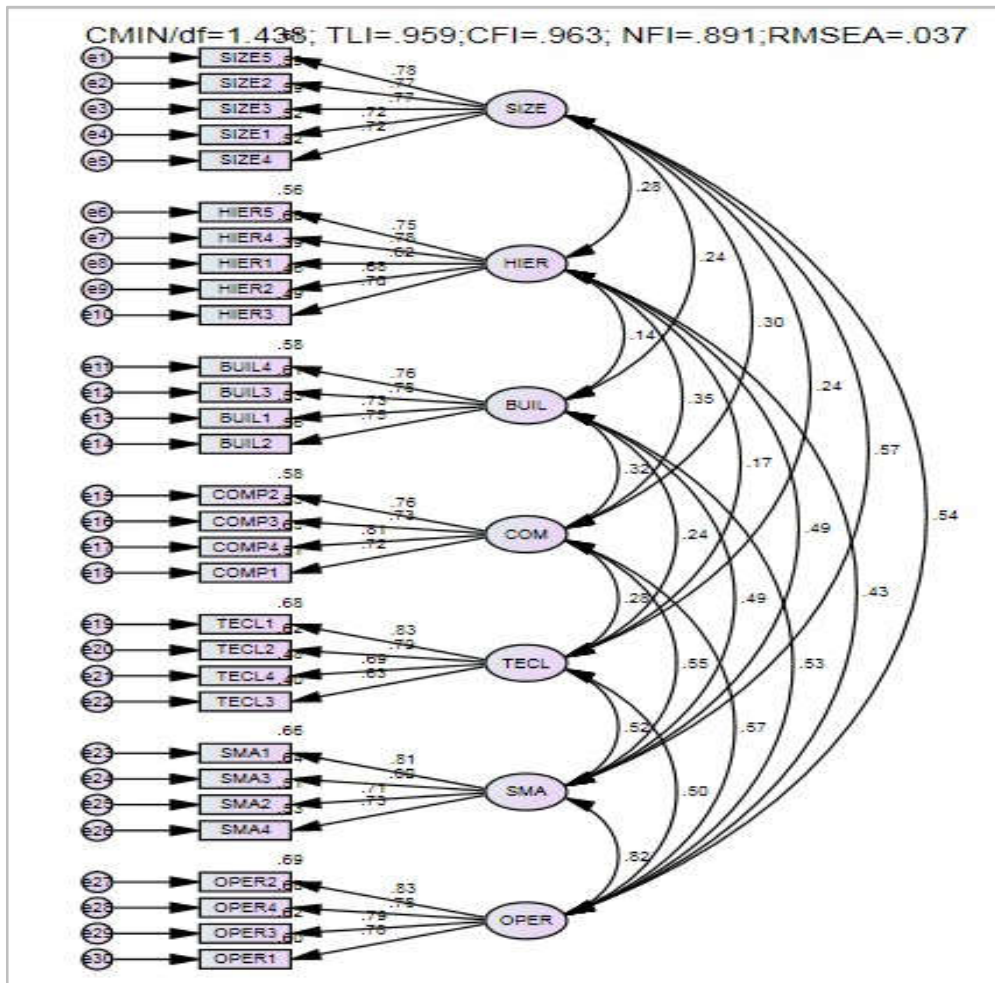


Figure 8: Confirmatory factor analysis results

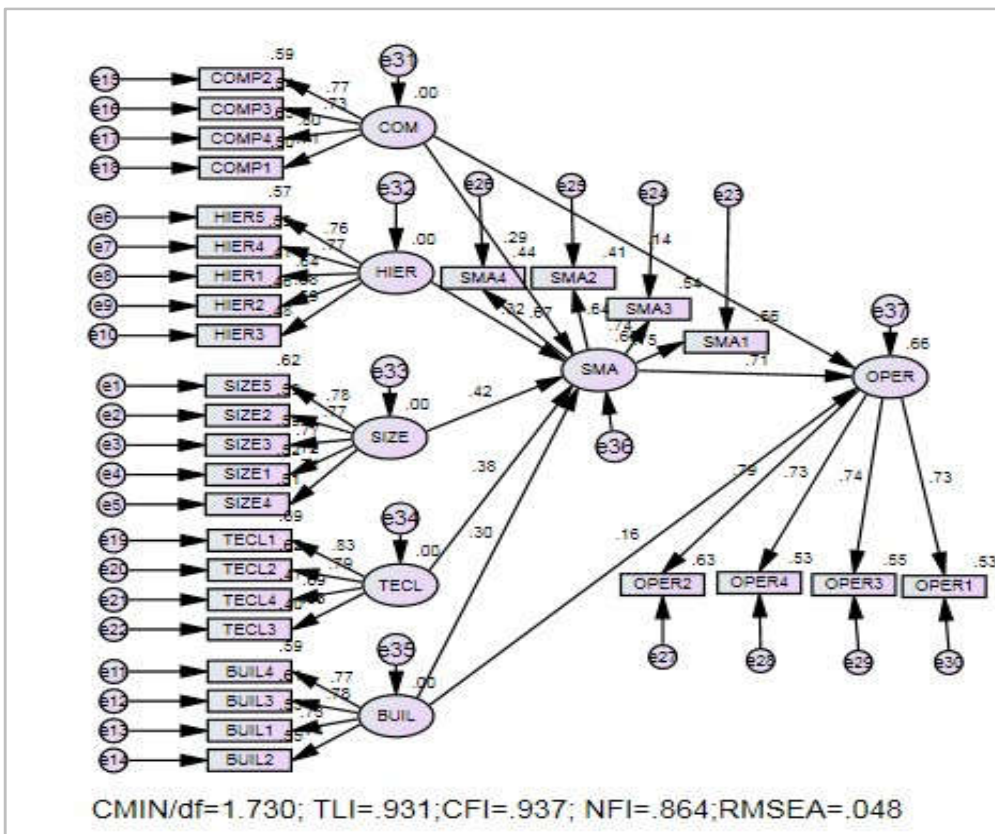


Figure 9: Results of the Structural Equation Modeling

Table 3. The fit indices of the CFA

No	Measures	Indicator Standard value	Model value	Results
1	Cmin/df)	$\chi^2/d.f. < 3$ good fit; < 5 accepted; The smaller the better. (Bentler and Bonett 1980; Bagozzi and Jy, 1988)	1.438	Good
2	TLI (Tucker-Lewis Index)	TLI, the closer is to 1, the more appropriate; $TLI > 0.90$ Consistent; $TLI \geq 0.95$ is in good agreement. (Hu and Bentler, 1998)	0.959	Good
3	CFI (Comparative Fit Index)	$CFI > 0.90$; $0 < CFI < 1$, The closer to 1, the more suitable (Hu and Bentler, 1998).	0.963	Good
4	NFI (Normal Fit Index)	NFI, the closer to 1, the more suitable; NFI close to 0.90, accepted; $NFI > 0.95$ Good fit. (Chin and Todd, 1995; Hu and Bentler, 1998)	0.891	Accepted
5	RMSEA (Root Mean Square Error Approximation).	$RMSEA < 0.05$, the model fits well; $RMSEA < 0.08$, accepted; The smaller the better. (Browne & Cudeck, 1993)	0.037	Good

Table 4. The model fits the actual data in this study

Hypothesis	Path		Estimate	S.E.	C.R.	P	Decision	
H1	SMA	<---	COM	0.280	0.054	5.209	***	Accept
H2	SMA	<---	HIER	0.309	0.055	5.675	***	Accept
H3	SMA	<---	SIZE	0.368	0.051	7.288	***	Accept
H4	SMA	<---	TECL	0.326	0.049	6.708	***	Accept
H5	SMA	<---	BUIL	0.307	0.057	5.365	***	Accept
H6	OPER	<---	SMA	0.753	0.077	9.802	***	Accept
H7	OPER	<---	BUIL	0.169	0.058	2.890	0.004	Accept
H8	OPER	<---	COM	0.139	0.055	2.530	0.011	Accept

Note: *** (Sig. = 0.000).

The results presented in Table 4 show that: all hypotheses are supported at the significance level ≤ 0.05 , the confidence level is over 95%.

Table 5. Magnitude of the impact

Impact on SMA SMA = f(COM, HIER, SIZE, TECL, BUIL)			Regression coefficient	%	Position
SMA	<---	COM	0.280	17.6	5
SMA	<---	HIER	0.309	19.4	3
SMA	<---	SIZE	0.368	23.1	1
SMA	<---	TECL	0.326	20.5	2
SMA	<---	BUIL	0.307	19.3	4
Sum			1.590	100	
Impact on OPER OPER = f(BUIL, COM, SMA)					
OPER	<---	BUIL	0.169	15.9	2
OPER	<---	COM	0.139	13.1	3
OPER	<---	SMA	0.753	71.0	1
Sum			1.061	100	

In Table 5, factors affecting "SMA" in the ascending order of magnitude as following: SIZE, TECL, HIER, BUIL, COM. Similarly, the ascending order of magnitude of the factors influencing OPER as following: SMA, BUIL and COM.

Confirmatory factor analysis

The measurement model that fits the best to the data that needs to assure the alignment of five indicators, namely (i) Cmin/df; (ii) TLI; (iii) CFI; (iv) NFI; (v) RMSEA (Gefen *et al.*, 2011).

Structural Equation Modeling

The analysis results are present in Figure 9. The measurement model has Cmin/df = 1.730; TLI = 0.931; CFI = 0.937; NFI = 0.864 and RMSEA = 0.048 that conclude the integrated model fits well the actual data.

DISCUSSION AND MANAGEMENT IMPLICATIONS

From the analysis results, some implications are suggested: Firstly, the factors affecting the implementation of SMA include: Enterprise size, Technology level, Management hierarchy, Business strategy building Market competition Level Enterprises should focus on (i) expand in terms of Labor, Charter capital, Revenue, Total asset value and Fixed assets. Second, implementing of SMA, building business strategies and enhancing market competition affecting operational performance. Therefore, improving the SMA system should be interested in business development strategies and plans and especially pay more attention to the adaptability of business strategy and improve the competitiveness of enterprises.

Third, implementing strategic management accounting as an intermediary factor of the relationship between strategy building - market competition and operational performance.

Conclusion

In the context of international integration, strong competition for survival and development, implementation of SMA plays an important role in the development of enterprises. Based on a survey of 352 manufacturing and processing enterprises in the Southeast Vietnam and using the Structural Equation Modeling, the study shows that the implementation of SMA has positive impacts on operational performance. This finding is in alignment with the results of a study on the case of implementing SMA for enterprises in Ghana in West Africa by Adu-Gyamfi *et al.* (2020) and the study on manufacturing and processing enterprises in Delta State, Nigeria by Emiaso and Egbunike (2018). The research results provide a scientific basis for business directors/managers in improving operational performance.

Research limitation and Further study

The current study aims to expand the current literature on the factors influencing SMA, and thereby relationship between SMA implementation and operational performance by figuring

out important empirical results on the case of the Southeast Vietnam. The findings emphasize the importance of SMA in the correlations with operating performance. Therefore, this study provides insights into the interrelationships among these factors expressed in a structural equation model. However, this study remains its own limitation. The data were collected only from 2 provinces and a city in the Southeast region that limits the external validity of the study. We suggest further study should apply for more regions at the same time to tackle this limitation. In addition, further studies might invest in exploring other factors out of SMA that have impact on the operating performance that is missing in this study.

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APPENDIX

Table 6. Measurement scale and observed variables

No	Measurement scale	Code
I	Building business strategy	BUIL
1	Strategies are often analyzed before turning them into action	BUIL1
2	Realize slowness or no deviation	BUIL2
3	In our enterprise, strategic action often develops in the absence of strategic intent	BUIL3
4	Strategic actions are often adapted to new events arising in the market	BUIL4
II	Management hierarchy	HIER
4	Enterprises have decentralization of management on new product development	HIER1
5	Enterprises have decentralization of management in terms of recruiting and firing employees	HIER2
6	Enterprises have decentralization of management on asset purchase	HIER3
7	Enterprises have decentralization of management on selling price	HIER4
8	Enterprises have decentralization of management on product distribution	HIER5
III	Size of business In the last 3 years	SIZE
9	The average number of employees per year increases	SIZE1
10	Charter capital increased	SIZE2
11	The total value of assets on the balance sheet increased	SIZE3
12	Average annual revenue increase	SIZE4
13	The value of fixed assets of the enterprise increases	SIZE5
IV	Technology level	TECL
12	Technology is the core factor in the operating system of enterprises	TECL1
13	Production / service techniques are based on advanced technology	TECL2
14	Accounting information system is made on computer	TECL3
15	Enterprises invest in software to support accounting and other administrative functions	TECL4
V	The level of competition	COMP
16	Enterprises have to face competitive pressure on raw materials	COMP1
17	Enterprises have to face competitive pressure on human resources	COMP2
18	Enterprises have to face competitive pressure on sales and distribution	COMP3
19	Enterprises are under competitive pressure in terms of product variety and price	COMP4
20	Enterprises have to face competitive pressure on product quality	COMP5
VI	The application of Strategic Management Accounting in enterprises	SMA
23	Enterprises establish and operate a comprehensive quality management system	SMA1
24	Enterprises establish and operate an activity-based management system	SMA2
25	Enterprises use the balanced scorecard to measure overall performance	SMA3
26	Accountants track the cost of a product by each stage in its life cycle	SMA4
27	Accountants collect costs separately for each activity in the value chain from the production stage to the product delivery stage	SMA5
VII	Operational performance of enterprises in the last 3 years	OPER
29	Decreasing production cost per unit of product	OPER1
30	Profit after corporate income tax increased	OPER2
31	The number of satisfied customers about the business increased	OPER3
32	The company's market share expands	OPER4
