

Factors affect cost management accounting application of manufacturing enterprises in Southern Vietnam

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ABSTRACT

To identify factors affecting cost management accounting application of manufacturing enterprises is a challenge. By quantitative approach, we propose our research model and five hypotheses. During the implementation, we surveyed 179 manufacturing enterprises in southern Vietnam. Then, the research model is Cronbach Alpha tested, conducted exploratory factor analysis, and run regression analysis to explain our proposed hypothesis. The result indicates there are 26 variables from Vietnamese manufacturing enterprise's managers view grouped into 5 factors affecting the cost management accounting application. These factors are manager's cognition, accountant's professional level, enterprise size, IT application level, and decentralized administration. The paper conclusion progressively paves the way for further researches on cost management accounting application.

1. Introduction

Cost management accounting is considered as a part of an enterprise management system with the main function of providing cost information to managers in each enterprise so that they can do the management functions including planning, decision-making, and control (Hansen & Mowen, 2006). Recently, the pressure of competition in the context of globalization and integration has been increasing more and more for managers, especially in the range of manufacturing enterprises (VCCI, 2018). Operating cost and calculation of product price is very different at each manufacturing enterprise as well as depends on decentralized administration (Colmenares, 2009). Therefore, cost management accounting application in the manufacturing enterprises plays a crucial role to provide managers with sufficient information to control, manage and using costs for enterprise operations in an effective manner (Topor, 2013).

Currently, the cost management accounting application in manufacturing enterprises in Vietnam is affected by a variety of factors. The cost information that the cost management accounting system of many manufacturing enterprises has, is still formal and towards presentation on financial accounting form. In the era of the strong development of IT, Raphael and Artus (2018) surveyed and conducted initial studies on cost accounting analysis when applying Business Intelligence application from the perspective of stakeholders. These are prerequisites to research the effect of IT factors on cost management accounting application in enterprises.

- From the reasons mentioned above, an experimental study on the factors affecting cost management accounting application of manufacturing enterprises in Vietnam is considered as an

urgent requirement contributing to the development of enterprises. The research is conducted in the survey scope including manufacturing enterprises in the southern Vietnam area. This paper sets the following objectives:

- *To identify* affecting factors to cost management accounting application of manufacturing enterprises;
- *To define* the impacting level of each identified factor to cost management accounting application of manufacturing enterprises in southern Vietnam;
- *To suggest* notifications for manufacturing enterprise managers to effectively implement cost management accounting application.

The remainder of the paper is organized into the following four sections. First, there is a literature review looking at prior research that informs this study. The next section mentions on methodology, including the research model and measurement design. The third section presents the research findings. In conclusion, the research ends with notifications based on the explored result, also noting on future research.

2. Literature review

2.1. Cost management accounting application

Cost management accounting application is the use of internal accounting data in the information system of enterprise at a variety of levels and scopes to make plans, analyze cost fluctuations, thereby helping managers make decisions (Godil & Shabib-ul-Hasan, 2018). Talha, Raja, and Seetharaman (2010) supposed cost management accounting application is the integration of the accounting process into control and evaluation of business operations of an enterprise to improve its performance. Cost management accounting information application provides managers with a basis for making decisions instead of depending on conjecture and experience (Hansen & Mowen, 2006). The author considered cost management accounting application from the perspective of information accounting system (James, 2019), with the following steps (1) input cost management accounting information system application (Input), (2) output cost management accounting information processing application (Process), and (3) output cost management accounting information system application (Output). Raphael and Artus (2018) supposed that cost management accounting information plays an important role in the process of operating and managing businesses. Cost management accounting is considered as an effective tool to help enterprises achieve their administrative targets.

2.2. International research

In the past decades, cost management accounting has developed strongly and plays an important role in enterprise administration to help managers have a basis for decision-making. The study of Talha et al. (2010) showed the positive contribution of the cost management accounting systems in the computer environment with the application of ERP systems to increasingly promote support roles for managers in business process management. The typical studies that can be stated including the study of Pomberg, Pourjalali, Daniel, and Kimbro (2012) about the management accounting information system in Vietnam. The research team has surveyed health facilities in Hanoi to conclude about factors conclude including operating environment, changes in the health system, demand on cost information of managers, etc. that require health facilities to apply cost management accounting to serve the demand of executive managers.

The study of Topor (2013) surveyed the aspects of cost information for decision making in the industry of wine manufacturing in Bulgaria. Topor analyzes the role of cost information for

decision making, current economic constraints in the wine industry and proposed the completion of the cost economic system for wine producers in Bulgaria. In 2018, Raphael and Artus studied the cost accounting analysis in the context of the application of Business Intelligence (BI) from the perspective of stakeholders. Its results indicate that managers want to have cost accounting information promptly and they are presented as suggested when applying BI to make decisions easier to make decisions for competing with rival companies. Another study made by the following authors including Godil and Shabib-ul-Hasan in 2018 showed a positive relationship between the independent factors affecting the management accounting system in Pakistani enterprises.

The factors affecting cost management accounting application are realized from both inside and outside of an organization. Many foreign studies show that cost management accounting application in a certain context, sectors, and fields is necessary.

2.3. Domestic research

Besides financial accounting and tax accounting, Vietnamese enterprise in recent years starting to noting on management accounting system build, specifically cost management accounting application. The reason for that is enhancing the decision system support for managers. There are several Vietnamese studies on factors affecting management accounting application in general and cost management accounting application in particular. Doan (2016) published a list of factors affecting the use and consequences of management accounting practices in Vietnam including decentralized administration, manager's cognition, and IT application factors. Other research conducted by G. V. T. Nguyen (2017) revealed a group of factors impacting management application to Vietnamese enterprises which are manager's cognition, enterprise culture, enterprise size, and accountant's professional level. G. V. T. Nguyen's research however considered management accounting application in general, not specific on the cost management system. Recently, there are also a publish on factors affecting management accounting application among food processing enterprises at Ben Tre province (La, Tran, & Tran, 2020). The factors are considered having a significant effect on management accounting application include enterprise size, manager's cognition, decentralized administration, and accountant's professional level. La et al.'s research group remains on management accounting application in general and narrows down the scope to a specific area - Ben Tre province. Following the on-going researches in Vietnam, the author attempts to shift the research focus on cost management accounting application of manufacturing enterprises.

In consideration of characteristics and status of cost management accounting organization for freight transport in Vietnam road transport enterprises, L. T. N. Nguyen (2012) stated the requirements to complete a cost management accounting organization for freight transport. The study of Tran (2014) focused on developing and analyzing the factors affecting cost management accounting organization. Its results show the factors that need to be considered to make a supply of cost management accounting to managers effective including IT applications, decentralized administration, etc. In 2015, Bui studied the status of cost management accounting application at enterprises operating in the field of IT in HCM city. This study proposes solutions to complete the task of cost management accounting for IT enterprises in HCM city. Besides, Huynh (2016) analyzed and evaluated the status of cost management accounting at a specific enterprise. The main contents consist of cost classification, norm setup, cost fluctuation analysis, and cost aggregation - product costing. The conclusion of the study is to complete the cost management accounting organization at enterprises.

In 2017, Le conducted the topic "Completion of cost management accounting in the seafood processing enterprises in Hau Giang province". The author proposes solutions to complete

cost management accounting in the condition of computerization. Several typical domestic studies mainly focus on the enterprise with some typical industries. However, there is still no comprehensive large-size study such as manufacturing. Most of the studies are about the completion of cost management accounting organization available and less focus on identifying and analyzing the factors affecting cost management accounting application.

In conclusion, the domestic and foreign studies about cost management accounting currently focus on accounting organization and proposal of solutions to complete cost management accounting. However, there is still no comprehensive study at the scale of one industrial field; for example, the manufacturing, to identify the factors affecting cost management accounting application. There is the “research gap” that the author will focus on researching in southern Vietnamese manufacturing enterprises.

3. Research model and methodology

3.1. Related theory and research model

3.1.1. Contingency theory

The concept of contingency theory was first developed in the field of organization theory in the 1960s. However, it was not until the mid-1970s that the contingency theory was developed in the field of accounting system design and research application in management accounting (Waterhouse & Tiessen, 1978). This theory insists that the effective performance of an enterprise depends on the appropriateness of its structure, decentralized administration with random events concerning the enterprise's operation that managers have to make decisions (Mullins, 2013). According to Chenhall (2003), the contingency theory that is applied in the foundation study to explain that no solution can solve all problems for enterprise and effectiveness of each solution will depend on the enterprises' characteristics as well as influence factors. The contingency theory sets a foundation in the study of the cost management accounting system in an interactive relationship with the operating environment. The cost management accounting application in general and cost management accounting must depend on characteristics of each field and be consistent with a decentralized administration, enterprise size, employees' professional level, and business strategies. in each certain period. Factors affecting application and deployment of competer accounting for accounting cost management, specific management accounting techniques, etc. are divided into two groups: internal factors and external ones in the enterprise (Gordon & Miller, 1976; Otley, 1980).

The author applies contingency theory for the research model with factors affecting cost management accounting application. Relevant internal factors from previous studies are manager's cognition, decentralized administration, accountant's professional level, and enterprise size (Colmenares, 2009; Etemadi & Kazeminia, 2014). Besides, the common external factor mentioned is IP application level (Kanellou & Spathis, 2011; Pervan & Dropulic, 2019).

3.1.2. Proposed research model

The author proposed a research model:

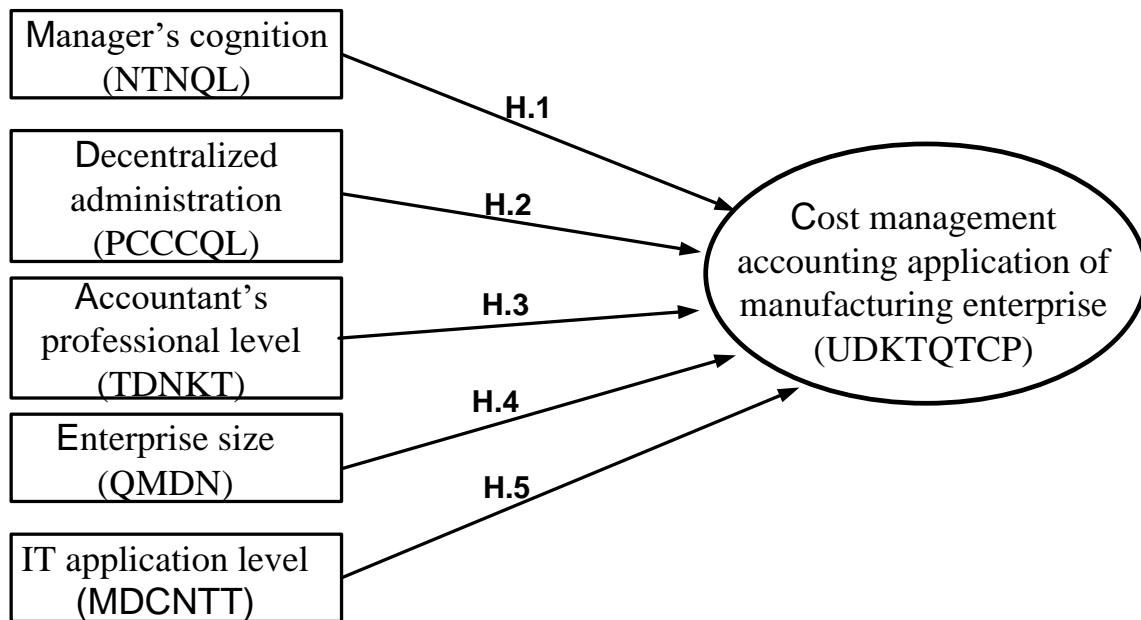


Figure 1. Proposed research model

In the research model suggested hypotheses include:

H1: Manager's cognition has an impact on cost management accounting application

H2: Decentralized administration has an impact on cost management accounting application

H3: Accountant's professional level has an impact on cost management accounting application

H4: Enterprise size has an impact on cost management accounting application

H5: IT application level has an impact on cost management accounting application

The general approach, each observed variable for a specific factor is mentioned in the questionnaire survey. Factor Manager's cognition (NTNQL) is described by 5 observed variables. Factor Decentralized administration (PCCCQL) is described by 4 observed variables. Factor Accountant's professional level (TDNKT) is presented by 6 observed variables. While Enterprise size (QMDN) is presented by 4 observed variables and IT application level (MDCNTT) is explained by 6 observed variables. Finally, the dependent factor Cost management accounting application (UDKTQTCP) is described by 4 observed variables. Each observed variable is measured by a 5-points Likert scale from (No. 1) not important to (No. 5) very important to survey the importance of factors that affecting cost management accounting application from manufacturing enterprise's manager viewpoint. The collected data are processed and reported in the Findings section.

3.2. Research methodology

Step-by-step direction to implement this research is as follow:

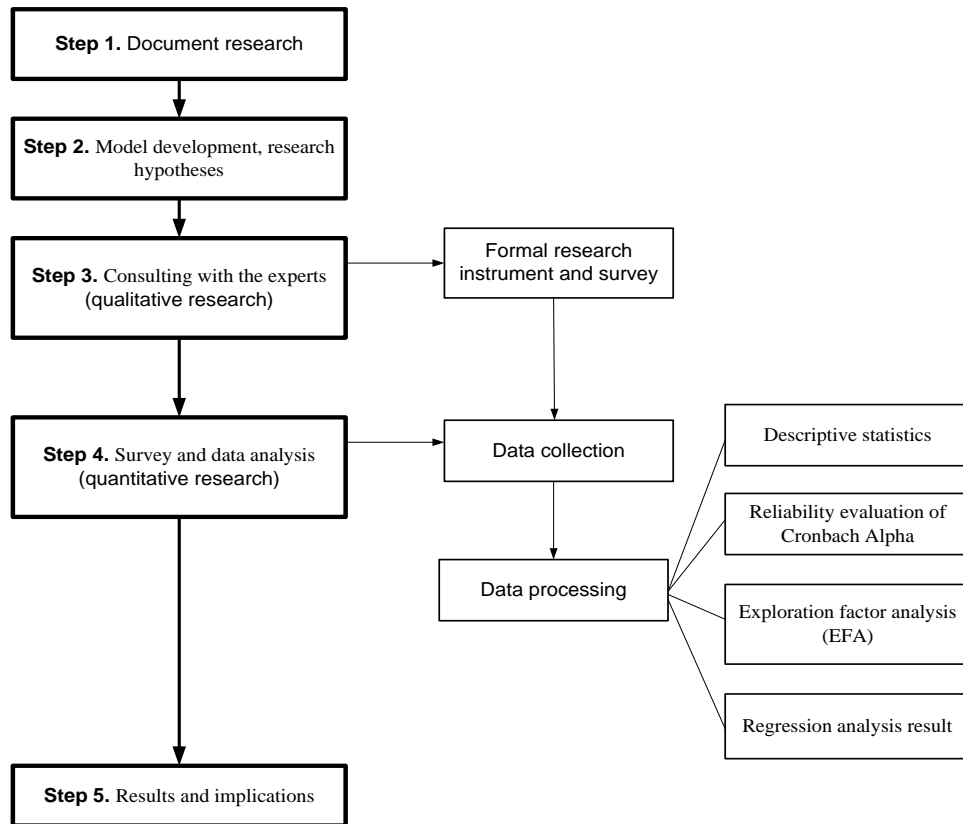


Figure 2. Steps of the research process

- Step 1: Document research

To form the research idea, the author collected domestic and foreign documents, thereby identifying the research gap and the reason for choosing the topic.

- Step 2: Model development, research hypotheses

The author proposed a research model for factors affecting cost management accounting application in manufacturing enterprises based on contingency theory when applying cost management accounting. From the proposed research model, there are five research hypotheses. After that, the author prepares a draft survey.

- Step 3: Consulting with experts

From the draft survey, the author consulted with the experts on factors and measured variables and then completed the questionnaire.

- Step 4: Survey and data analysis

The author sent the survey to collect data from manufacturing enterprises in the provinces and cities of Southern Vietnam. Data is processed by SPSS software. Quantitative analysis will show results about descriptive statistics, evaluation of scale reliability, factor analysis, and regression analysis for testing hypotheses.

- Step 5: Results and implications

After the data is processed, the author gets the results of the influence level of factors on cost management accounting application in manufacturing enterprises. From there, the author discusses and provides implications to help enterprises effectively apply cost management accounting.

4. Findings

4.1. Descriptive statistics

The survey forms that the author selected objects as enterprise managers, managers of financial and accounting data, etc. The survey sheets focus on the *manufacturing fields* including food processing, beverage production, textile production, leather production, plastic product production, etc. The author gets 179 sheets of the total number of sheets sent. After deleting 5 invalid ones, the remaining 174 sheets are used in the study.

The author surveyed general information about fields of production and business, age, position, number of working years, information about cost management accounting model, and reality of cost management accounting application at enterprises. Through statistics, the cost management accounting model surveyed tends to separate financial accounting and management accounting with 69.54%. The age of surveyed objects ranges from 31-40 years old, accounting for 43.10%, mainly as an integrated accountant (52.30%) and chief accountant (19.54%) with the number of working years mostly from 10 years or less (93.68%). The main kinds of manufacturing enterprises in the survey, which account for a large proportion, are textile (21.26%), leather production, relevant products (17.24%) and plastic products (13.22%). Most of the surveyed enterprises have been applying cost management accounting (72.4%).

According to Likert scale, observed variables have a minimum value of 1.0 and a maximum value of 5.0. The average value fluctuates from the TDNKT2 observed variable belonging to the factor - accountant's professional level with the smallest average value as **3.47** to NTNQL5 observed variable belonging to the factor - Manager's cognition with the biggest average value as **4.61**.

4.2. Reliability test - Cronbach's Alpha

According to Hoang Trong and Chu (2008), criteria for choosing a scale are in the case that Cronbach's Alpha reliability is greater than ($>$) 0.6 and simultaneously, the correlation coefficient of total variables observed for the factor measurement is greater than ($>$) 0.3 (Hair, Black, Babin, Anderson, & Tatham, 2005).

4.2.1. Cronbach's Alpha - The factor of manager's cognition

Table 1

Cronbach's Alpha - Manager's cognition factor (first time)

Factor of manager's cognition (NTNQL) - the first time				
Observed variables	Cronbach Alpha			0.765
	Scale Mean if Item deleted	Scale Variance if Item deleted	Corrected Item-total Correlation	Cronbach Alpha if Item deleted
NTNQL1	10.24	7.19	0.67	0.68
NTNQL2	10.09	7.36	0.61	0.70
NTNQL3	10.21	7.05	0.59	0.71
NTNQL4	11.23	8.48	0.21	0.84
NTNQL5	10.02	6.82	0.71	0.67

Source: Data analysis result of the research

Cronbach's Alpha coefficient of the observed variables is $0.765 > 0.6$. However, the observed variable NTNQL4 measured for the factor did not meet an acceptable standard ($0.21 < 0.3$). Therefore, scale variables of the factor "Manager's cognition" need to be retested for the second time after deleting the observed variable NTNQL4.

Table 2

Cronbach's Alpha - Manager's cognition factor (second time)

Factor of manager's cognition (NTNQL) - The second time				
Observed variables	Cronbach Alpha			0.842
	Scale Mean if Item deleted	Scale Variance if Item deleted	Corrected Item-total Correlation	Cronbach Alpha if Item deleted
NTNQL1	11.27	7.89	0.68	0.80
NTNQL2	11.12	8.04	0.62	0.68
NTNQL3	11.26	7.32	0.66	0.78
NTNQL4 (new)	10.97	7.78	0.76	0.77

Source: Data analysis result of the research

4.2.2. Cronbach's Alpha - Decentralized administration of enterprise factor

Table 3

Cronbach's Alpha - Decentralized administration of enterprise factor

Factor of Decentralized administration of enterprise (PCCCQL)				
Observed variables	Cronbach Alpha			0.869
	Scale Mean if Item deleted	Scale Variance if Item deleted	Corrected Item-total Correlation	Cronbach Alpha if Item deleted
PCCCQL1	8.33	9.89	0.63	0.86
PCCCQL2	8.89	9.22	0.72	0.83
PCCCQL3	8.72	8.84	0.75	0.82
PCCCQL4	8.81	8.67	0.78	0.81

Source: Data analysis result of the research

Cronbach's Alpha coefficient for observed variables is $0.869 > 0.6$. The correlation coefficient of total variables for observed variables measured factor meets the allowable standard > 0.3 .

4.2.3. Cronbach's Alpha - Accountant's professional level factor

Table 4

Cronbach's Alpha - Accountant's professional level factor

Factor of Accountant's professional level (TDNKT)				
Observed variables	Cronbach Alpha			0.809
	Scale Mean if Item deleted	Scale Variance if Item deleted	Corrected Item-total Correlation	Cronbach Alpha if Item deleted
TDNKT1	9.57	9.96	0.69	0.89
TDNKT2	9.65	9.61	0.76	0.88
TDNKT3	9.73	9.52	0.71	0.86
TDNKT4	9.82	9.80	0.84	0.87
TDNKT5	9.91	10.39	0.73	0.83
TDNKT6	8.07	10.23	0.72	0.86

Source: Data analysis result of the research

Cronbach's Alpha coefficient for observed variables is $0.809 > 0.6$. The correlation coefficient of total variables for observed variables measured factor meets the allowable standard > 0.3 .

4.2.4. Cronbach's Alpha - Enterprise size factor

Table 5

Cronbach's Alpha - Enterprise size factor (first time)

Factor of Enterprise size (QMDN) - The first time				
Observed variables	Cronbach Alpha			0.844
	Scale Mean if Item deleted	Scale Variance if Item deleted	Corrected Item-total Correlation	Cronbach Alpha if Item deleted
QMDN1	9.31	9.03	0.66	0.81
QMDN2	9.14	8.71	0.75	0.73
QMDN3	9.15	9.28	0.27	0.83
QMDN4	8.98	9.46	0.62	0.79

Source: Data analysis result of the research

Cronbach's Alpha coefficient for observed variables is $0.844 > 0.6$. However, observed variable QMDN3 measured for the factor did not meet an acceptable standard ($0.27 < 0.3$). Therefore, scale variables of the factor "Enterprise size" need to be retested for the second time (after deleting observed variable QMDN3).

Table 6

Cronbach's Alpha - Enterprise size factor (second time)

Factor of Enterprise size (QMDN) - The second time				
Observed variables	Cronbach Alpha			0.806
	Scale Mean if Item deleted	Scale Variance if Item deleted	Corrected Item-total Correlation	Cronbach Alpha if Item deleted
QMDN1	10.42	9.15	0.71	0.83
QMDN2	10.04	8.82	0.74	0.76
QMDN3 (new)	9.96	9.58	0.68	0.82

Source: Data analysis result of the research

*4.2.5. Cronbach's Alpha - IT application level factor***Table 7**

Cronbach's Alpha - IT application level factor

Factor of IT application level (MDCNTT)				
Observed variables	Cronbach Alpha			0.793
	Scale Mean if Item deleted	Scale Variance if Item deleted	Corrected Item-total Correlation	Cronbach Alpha if Item deleted
MDCNTT1	9.65	9.61	0.77	0.88
MDCNTT2	9.14	8.71	0.75	0.73
MDCNTT3	11.26	7.32	0.66	0.78
MDCNTT4	10.97	7.78	0.76	0.77
MDCNTT5	10.02	6.82	0.71	0.67
MDCNTT6	9.91	10.39	0.73	0.83

Source: Data analysis result of the research

Cronbach's Alpha coefficient for observed variables is $0.793 > 0.6$. The correlation coefficient of total variables for observed variables measured factor meets the allowable standard > 0.3 .

*4.2.6. Cronbach's Alpha - Cost management accounting application factor***Table 8**

Cronbach's Alpha - Cost management accounting application factor

Factor of Cost management accounting application (UDKTQTCP)				
Observed variables	Cronbach Alpha			0.804
	Scale Mean if Item deleted	Scale Variance if Item deleted	Corrected Item-total Correlation	Cronbach Alpha if Item deleted
UDKTQTCP1	10.21	9.64	0.64	0.75
UDKTQTCP2	10.23	9.15	0.68	0.72
UDKTQTCP3	10.38	10.04	0.55	0.78
UDKTQTCP4	10.53	8.44	0.62	0.76

Source: Data analysis result of the research

Cronbach's Alpha coefficient for observed variables is $0.804 > 0.6$. The correlation coefficient of total variables for observed variables measured factor meets the allowable standard > 0.3 .

4.3. Exploratory Factor Analysis (EFA)

After deleting NTNQL4 and QMDN3 variables, the remaining 27 observed variables of relevant factors are included in the exploratory factor analysis.

Table 9

KMO indicator and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.762
Approx. Chi-Square	1436.670
Barlett's Test of Sphericity df	187
Sig.	0.000

Source: Data analysis result of the research

According to EFA running:

- Factor KMO = 0.762 satisfying condition of ($0.5 < 0.762 < 1$), therefore exploratory factor analysis is appropriate for data sample;
- Correlation between variables - Bartlett Test with Sig. = $0.000 < 0.05$, therefore, the observed variables are linearly correlated with the representative factor;
- Variance extracted of 61.485% $> 50\%$. This means 61.485% of the change in factors is explained by the related observed variables;
- Value of Eigenvalue is $1.721 > 1$, qualified for factor analysis.

Table 10

Variance extracted

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.646	15.228	18.228	3.646	18.228	18.228	3.113	12.566	12.546
2	2.755	13.772	32.005	2.755	13.777	32.005	2.771	11.855	29.421
3	2.232	11.160	43.165	2.232	11.160	43.165	2.583	10.914	42.336
4	1.905	9.524	55.129	1.905	9.524	52.689	1.989	9.947	52.282
5	1.721	4.341	50.752	1.721	9.072	61.485	1.896	9.368	61.485
6	0.868	3.859	52.689						
7	0.772	3.684	61.761						
8	0.737	3.235	66.101						
9	0.647	2.969	69.961						
10	0.594	2.891	73.645						
11	0.578	2.667	76.880						
12	0.533	2.474	79.849						
13	0.495	2.358	82.740						
14	0.472	2.053	85.406						
15	0.411	2.042	87.881						
16	0.358	2.006	90.239						
17	0.352	1.854	92.291						
18	0.311	1.790	93.542						
19	0.285	1.758	94.082						
20	0.236	1.553	95.540						
21	0.367	1.426	95.823						
22	0.3121	1.281	97.393						
23	0.1653	1.164	98.819						
24	0.1798	1.028	93.341						
25	0.2108	0.897	97.839						
26	0.1219	0.766	97.337						
27	0.2228	0.635	98.835						

* Application of Varimax factor rotation to minimize the number of observed variables for the same component and improve the ability to interpret component factors (Hoang Trong & Chu, 2008)

Source: Data analysis result of the research

Table 11

Result of EFA factor rotation matrix

Observed variables	Factors					
	NTNQL	PCCCQL	TDNKT	QMDN	MDCNTT	UDKTQTCP
NTNQL1	0.843					
NTNQL4	0.824					
NTNQL3	0.780					
NTNQL2	0.776					
PCCCQL1		0.802				
PCCCQL3		0.775				
PCCCQL2		0.698				
PCCCQL4		0.663				
TDNKT5			0.875			
TDNKT4			0.834			
TDNKT3			0.812			
TDNKT1			0.805			
TDNKT6			0.799			
TDNKT2			0.783			
QMDN1				0.852		
QMDN3				0.835		
QMDN2				0.809		
MDCNTT3					0.861	
MDCNTT4					0.832	
MDCNTT6					0.794	
MDCNTT1					0.791	
MDCNTT5					0.729	
<u>MDCNTT2</u>					<u>0.318</u>	
UDKTQTCP1						0.851
UDKTQTCP4						0.806
UDKTQTCP3						0.754
UDKTQTCP2						0.716

Source: Data analysis result of the research

The results indicated that the observed variable deleted is MDCNTT2; due to Factor loading < 0.55 (Hair et al., 2005). The factors include observed variables sorted by the order of factor loading coefficient:

- The factor of NTNQL consists of 4 observed variables including NTNQL1, NTNQL4, NTNQL3, and NTNQL2;
- The factor of PCCCQL consists of 4 observed variables including PCCCQL1, PCCCQL3, PCCCQL2, and PCCCQL4;
- The factor of TDNKT consists of 6 observed variables including TDNKT5, TDNKT4, TDNKT3, TDNKT1, TDNKT6, and TDNKT2;
- The factor of QMDN consists of 3 observed variables including QMDN1, QMDN2, and QMDN3;
- The factor of MDCNTT remains 5 observed variables in the following order MDCNTT3, MDCNTT4, MDCNTT6, MDCNTT1, and MDCNTT5;
- The factor of UDKTQTCP consists of 3 observed variables including UDKTQTCP1, UDKTQTCP4, UDKTQTCP3, and UDKTQTCP2.

4.4. Regression analysis result

With Sig. value of the independent factors is exactly small ($0.000 < 5\%$), which showing that the specific regression coefficient of each factor *is significant* in the model with 95% reliability.

Table 12

Statistics of each factor

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.165	0.181		0.909	0.301		
NTNQL	0.310	0.021	0.582	14.657	0.000	0.949	1.056
TDNKT	0.217	0.019	0.476	12.379	0.000	0.953	1.03
QMDN	0.204	0.019	0.453	11.482	0.000	0.978	1.025
MDCNTT	0.196	0.012	0.438	8.136	0.000	0.934	1.062
PCCCQL	0.152	0.016	0.336	11.143	0.000	0.991	1.073

Source: Data analysis result of the research

Table 13

Research model interpretation level

Model	R	R Square	Adjusted R Square	Std. Error of the Estimation	Durbin-Watson
1	0.833	0.692	0.691	0.27203	1.72

Source: Data analysis result of the research

R Square (**R²**) equals to **0.692**. This means that 69.2% of cost management accounting application variation is interpreted by independent (affecting) factors. Based on the standardized

regression coefficient (Table 12), the author confirms all research hypotheses:

- The coefficient of factor NTNQL is 0.582 (+), therefore, it has a positive relationship with UDKTQTCP (**H1**);
- The coefficient of factor TDNKT is 0.476 (+), therefore, it has a positive relationship with UDKTQTCP (**H3**);
- The coefficient of factor QMDN is 0.453 (+), therefore, it has a positive relationship with UDKTQTCP (**H4**);
- The coefficient of factor MDCNTT is 0.438 (+), therefore, it has a positive relationship with independent factor UDKTQTCP (**H5**);
- The coefficient of factor PCCCQL is 0.336 (+), therefore, it has a positive relationship with independent factor UDKTQTCP (**H2**).

5. Conclusion and future research

In a brief discussion, the research outcome includes descriptive statistics, reliability evaluation of Cronbach Alpha, exploration factor analysis (EFA), and regression analysis. After checking factor reliability for observed variables by Cronbach Alpha, the author excludes 2 variables (NTNQL4 and QMDN3) and retained 27 variables. Next, by conducting EFA method, the author obtains the consequence of 5 convergent independent factor groups and 1 dependent factor group shown in Table 11. There is an invalid variable (MDCNTT2). The rest of the 26 variables are continued to implement regression analysis to define the impacting level of each identified factor to cost management accounting application in manufacturing enterprises. The regression result indicates five (5) impacting factors with the decremental order as the bellow conclusion.

5.1. Conclusion and implication

Research result shows 5 factors affecting cost management accounting application according to decreasing impact level as follow *factor of* manager's cognition (0.582, rate of 25.47%), accountant's professional level (0.476, rate of 20.83%), enterprise size (0.453, rate of 19.82%), IT application level (0.438, rate of 19.17%) and decentralized administration (0.336, rate of 14.70%). The selected independent factors interpret 69.2% of the variation for cost management accounting application. Based on the research result, the author proposes recommendations in an aim to assist manufacturing enterprise managers to apply cost management accounting effectively:

- In term of manager's cognition

The author supposes that it is necessary to raise the manager's cognition in the enterprise about the importance of cost management accounting application for decision making. Most managers in manufacturing enterprises in Vietnam remain thinking that financial accounting plays the main role in the accounting system. Therefore, manufacturing enterprises should facilitate managers to participate in courses and training programs related to cost management accounting application from reputable universities or invite experts from enterprises which successfully applying cost management accounting model to share experiences, thus enhancing cognition in practical aspect.

- In term of the accountant's professional level

In a competitive economic environment and subject to the influence of Technology

Industry 4.0, employees of cost management accounting must regularly update new knowledge and cost management accounting technique. Accountants are those who directly operate on the cost management accounting system, are considered as key personnel in the development and operation of cost management accounting. The author suggests that:

- Periodically and regularly develop training plans to update knowledge and skills for accountants. Organizing training courses with clear goals to enhance and improve qualification following the practical needs of tasks based on current work and future application;

- Depending on the specific cost management accounting tasks, the enterprise conducts designing an accountant evaluation form according to each assigned job completion criteria.

- *In term of enterprise size*

The small and medium-sized enterprises often have a “flat structure” so there are few obstacles in cost management accounting application. However, there is a weakness as the financial issue to organize a cost management accounting system consistent with the characteristics of a specific small-size manufacturing enterprise. The organizations with large-scale production and business will have high potential for financial resources, the number of accountants, and the capacity of modern IT applications. A difficulty for cost management accounting application in large-size enterprises is that they should pay attention to information exchange and accounting reporting needs at many administration levels with specific requirements on data from the cost management accounting system and set up more control procedures than small-size enterprises. Gordon and Miller (1976) noted that there is no single management accounting model is consistent with all manufacturing enterprises. As a result, cost management accounting application must be considered depending on size and each development stage of a specific enterprise.

- *In term of IT application level*

We acknowledge that data volume that the cost management accounting system in a manufacturing enterprise has to collect, process, and export reports is very large. Cost management accounting processing often requires a combination of many complex methods and techniques (Raphael & Artus, 2018). The author thinks that information technology infrastructure including networked computers, accounting software, or enterprise resource planning (ERP) is necessary for cost management accounting application, so:

- Top management instructions in the enterprise are needed to raise the IT application level in accordance with each management level;

- IT application level in an enterprise requires investment and infrastructure integration including computer configuration, network system - transmission line, and software;

- Note that there are required pieces of training and supports of specialized software for accountants to be able to utilize the functions for the service of cost management accounting in the enterprise.

- *In term of decentralized administration*

Cost management accounting system can only work effectively if there is a clear assignment between organizational departments and the division of cost management accounting (Zimmerman, 2010). The author noted that depending on the characteristics of each enterprise, the appointment of powers will be different and if the enterprise decentralizes management structure too much, it can lead to reduce operational efficiency. In contrast, superficial decentralized

management will result in difficulty to control and deciding responsibility for accounting data in coordination among departments throughout the organization. The author's conclusions are similar to Colmenares (2009) that appropriate decentralized management leads to a positive impact on cost management accounting application in manufacturing enterprises.

5.2. Future research

Firstly, this topic collects data to identify the factors affecting cost management accounting application in manufacturing enterprises in Southern Vietnam. However, the independent factors shown in the research model only interpret 69.2% of the variation in cost management accounting application. Therefore, there will be possibly other factors affecting cost management accounting application. This suspicion may lead to a future research direction to identify more unexplored impacting factors.

Secondly, this study identifies the influence level of five (05) independent factors affecting cost management accounting application. However, the survey data form is only collected in a range of manufacturing enterprises over Ho Chi Minh City and several neighboring provinces. For the research model to be more general, upcoming researches are needed to conduct a survey at a nationwide level or expand the survey scope to Southeast Asia or Asia Pacific regions...

Lastly, when collecting data for the study, the author surveys according to the opinion of manufacturing enterprise managers about the importance of factors that affecting cost management accounting application. To consider the concept cost management accounting application in a variety of aspects, the author proposes more findings to explore cost management accounting application according to different stakeholder views, for example from the perception of accounting staff or consulting companies who conduct cost management accounting application services for clients...

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