

The Impact of Management Accounting Information and the Moderating Role of Cloud Computing on Decision Making in SMEs: Research in Vietnam

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ABSTRACT

Using the resource-based view of the firm (RBV) theory, this study examined the relationship between management accounting information and decision-making in small and medium-sized enterprises (SMEs) in Vietnam. The study also explored the moderating role of cloud computing in this relationship. Analyzing data from a sample of 184 SMEs in Vietnam, the results showed that management accounting information enhanced decision-making in these enterprises. All four dimensions of management accounting information—scope, timeliness and frequency of reporting, aggregation, and integration—affect decision-making within SMEs at different levels. Furthermore, if an enterprise adopts cloud computing, a technology which helps people share data and work together no matter where they are, it will increase the strength of this relationship. The results of this research will provide both evidence and motivation for Vietnamese SMEs to adopt management accounting and cloud computing. This will help them make optimal management and business decisions, as a ramification.

Keywords: Management Accounting Information, Decision-Making, Cloud Computing, Small and Medium-Sized Enterprises.

ARTICLE INFO

Article History:

Received: 19 December 2023

Accepted: 26 April 2024

Available online: 01 December 2024

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INTRODUCTION

SMEs are the backbone of the Vietnamese economy, accounting for 97.37% of the total number of enterprises nationwide (Ministry of Planning and Investment, 2022). The business environment of SMEs is characterized by hyper-competition, change, and technological complexity (Christauskas & Miseviciene, 2012). SMEs have many capital and human resources limitations and a lack of information, and they apply more outdated technology than large-scale companies (Ting, 2004). With such a business environment and constraints, having enough knowledge to make crucial decisions to maximize profits and survive in a competitive landscape is very important for SMEs.

The practice of management accounting in a company can help bring effective and meaningful information to managers (Nain et al., 2022). Management accounting information is defined as an information source that contains both financial and non-financial information. Management accounting information is intended for use by internal users for the long-term benefit of the organization; it supports the planning, implementation, and evaluation of strategies (Hui & Mohd Yusof Ghani, 2010). Management accounting information helps a variety of purposes within a business, from supporting decision-making to being a means to improve business efficiency. Despite their small size and limited resources, SMEs can still benefit from management accounting information to help the efficiency and effectiveness of their business (Ahmad, 2017). So, management accounting information is essential for decision-making in enterprises, including SMEs.

According to data presented at the 2019 conference “The Overview of Vietnam IT”, regarding future plans for cloud computing in Vietnamese businesses, 3% of companies have no plans to deploy cloud computing in the future, 25% are researching the technology but have no plans to use it, 8% plan to use cloud computing in the next six months, 39% are currently using cloud computing, and 19% are using and will continue to use cloud computing (Le & Cao, 2020). According to a 2017 National University of Singapore report, Vietnam is Southeast Asia's fastest-growing cloud computing market. In 2018, Vietnam scored 41/100 points in terms of cloud service popularity, ranking 14th in Asia on the ranking list of the Asian Cloud Computing Association (Le & Cao, 2020). Cloud computing is considered a significant advancement in information technology and the Internet, as it provides an open environment for online integration and data sharing among users over long distances. Cloud computing plays a significant role in improving access to information, and the increase in scale, speed, and volume of data processing enhances the speed and quality of decision-making across enterprises. Cloud computing can help SMEs reduce costs and narrow the technology gap compared to larger enterprises. Thus, cloud computing is expected to help enhance the quality of information in businesses, including management accounting information, which can potentially affect the relationship between management accounting information and decision-making in SMEs.

Does management accounting information in Vietnamese SMEs affect their decision making, and does cloud computing affect this relationship? These were the questions we wanted to answer in this article in the context of digital transformation being a trend for Vietnamese enterprises.

Theoretically, research on the relationship between management accounting information and decision-making in enterprises has been conducted by many researchers in Vietnam and around the world. Most researchers agreed that management accounting information had a positive impact on decision-making in enterprises: Abu Bakar (2001), Schäffer & Steiners (2004), Hui & Mohd Yusof Ghani (2010), Hui et al. (2011), Lim (2011), Houcine (2017), Oboh & Ajibolade (2017), Horvat & Mojzer (2019), Braim (2020), Tran Thi Trinh (2017), Tran Nu Van Nhi (2021), Tu Thanh Hoai et al. (2022). However, Saukkonen et al. (2018) pointed out that there were limitations to using management accounting information in decision-making. Furthermore, most of the research has been conducted in large enterprises, with SMEs not receiving much attention. Meanwhile, the implementation of management accounting by SMEs often differed significantly from the management accounting systems of large enterprises. Therefore, our study focussed on this issue to determine the impact of management accounting information on decision-making in SMEs.

The adoption of cutting-edge technologies in management accounting has attracted the attention of many researchers (Nik Abdullah et al., 2022). Several studies have emphasized the role of cloud computing in improving information access at enterprises. The increase in scale, speed, and volume of data processing in cloud computing environments will help improve the pace and quality of decision-making across the enterprise: Quinn et al. (2014), Maelah et al. (2021), Khaliq et al. (2021), Alshwabkeh et al. (2022). In particular, two studies by Maelah et al. (2021) and Khaliq et al. (2021) were conducted in a similar manner to our intended research approach. However, these two studies investigated the impact of each individual dimension of management accounting information on decision-making, rather than examining the effects of management accounting information as a whole on decision-making within SMEs. The scale of variables in these two studies was not specified. In addition, these two studies were conducted in Pakistan and Malaysia, with conditions and levels of SMEs applying management accounting and cloud computing technology differently than in Vietnam. Therefore, research on the moderating role of cloud computing in the relationship between management accounting information and decision-making SMEs in Vietnam is of theoretical importance. And we tried to solve all issues, as the two studies by Maelah et al. (2021) and Khaliq et al. (2021) were still incomplete. In summary, the distinctions between our research and previous studies lie in our examination of the overall impact of management accounting information on decision-making within SMEs. We clarified the scale of variables, and notably, this was the first study to explore this issue within the context of SMEs in Vietnam.

The regression method was used in this study to test the research hypotheses with a sample size of 184 SMEs in Vietnam. Based on the discussion above, this study investigated if management accounting information can improve the decision-making

ability of Vietnamese SMEs, and if cloud computing can strengthen this relationship. Based on the research results, relevant parties can gain the necessary knowledge to promote the use of cloud computing in SMEs, thereby enhancing digital transformation in Vietnamese enterprises, meeting the National digital transformation program of Vietnam. The next sections will present the literature review and hypothesis development, research methods, results, discussion and conclusion, contributions and limitations.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Management Accounting Information

Management accounting is a tool developed during the industrial revolution to measure and manage resource consumption, output, and productivity at the operational level of a business. Therefore, the simplest definition of management accounting is that management accounting is the process of providing useful information to managers (Gaidienė & Skyrius, 2006).

In the beginning, management accounting information included only internal, historical, and financial information. Over time, management accounting information evolved and contained more important information, including internal/external, financial/non-financial, quantitative/qualitative, and historical/future information (Heidmann, 2008). Some management accounting information included information on costs, revenue, sales growth, capacity utilization, waste levels, customer satisfaction and loyalty, product quality, and employee motivation (Khaliq et al., 2021).

Decision-making

Decision-making is defined as choosing an action from among available options to achieve a particular goal or solve a problem. Decision-making is the backbone of management functions and is one of the most important tasks of managers and administrators in modern organizations (Kidane, 2012). According to Hashim et al (2010), decision-making is an action performed, a consideration after collecting and synthesizing necessary ideas from many different sources. The decision-making process can be viewed as the brain and nervous system of an organization. Decision-making can be about organizational structure, innovation, goals, processes, business conditions, and technology (Awasthi & Varman, 2003).

Cloud Computing

Cloud computing is a technology that allows on-demand, convenient, anywhere-networked access to a pool of computing resources configured for sharing (e.g., networks, servers, storage, applications, and services). Data in the cloud computing environment can be shared quickly without spending too much effort on management or interaction with service providers (Monteiro & Vasconcelos, 2013). Simply put, in

cloud computing, all the resources are arranged together in a cloud storage center, where users can use unlimited resources and computing power as long as they want. They just need devices connected to the Internet. Cloud computing allows users to meet the needs of information systems through purchasing services instead of purchasing equipment. Cloud computing performs the sharing of hardware and software resources and significantly meets the computing power needs of individuals and businesses.

Resource-Based View of the Firm

The background theory used in this research is Barney's (1991) resource-based view of the firm (RBV). Applying this theory to our research, it became evident that management accounting information was a vital resource for enterprises, aiding managers in making accurate and timely business decisions. In this context, large enterprises often had a competitive advantage over SMEs due to their technological and human resources. Technological advantages, in particular, enabled large businesses to collect and process information more effectively than SMEs, thereby facilitating more accurate business decisions. However, the advent of cloud computing technology had helped SMEs mitigate this technological advantage of large enterprises. Cloud computing enhanced the quality of management accounting information in SMEs by increasing the scale, speed, and volume of data processing, thanks to the application of the latest technological advances without the need for time-consuming installations or system reboots. The utilization of timely information for decision-making by managers at SMEs was significantly improved in a cloud computing environment due to its accessibility on any device with an Internet connection.

Hypothesis Development

Management Accounting Information and Decision-making

Management accounting information enhances decision-making, guides the development and evaluation of strategies, and focuses efforts on improving organizational performance. It also evaluated the contributions and performance of units and members within the organization (Mason & Kaplan, 1983). Tu Thanh Hoai et al. (2022) highlighted the role of management accounting information in transmitting the impact of accountants' participation in the strategic decision-making process on business performance, and the moderating role of accounting capacity on this impact.

Strategic management accounting information significantly contributed to strategic decision-making, improving competitiveness and increasing business market share (Oboh & Ajibolade, 2017). This was confirmed in the research of Tran Thi Phuong Lan (2019), who clarified the role of strategic management accounting in business decision-making. Ahmad (2017) pointed out that management accounting information was the primary source of information for decision-making and monitoring in enterprises.

Sharing this view, Horvat & Mojzer (2019) emphasized that internal accounting information provided a solid basis for management decision-making. However, management accounting only played an active role in decision-making if it did not increase the time needed to make decisions (Braum, 2020). For effective use in the decision-making process, management accounting information must be appropriate to the business context and reflect the roles, responsibilities, and values of the parties involved in the decision-making process (Saukkonen et al., 2018).

Therefore, we hypothesized the following:

H1: Management accounting information has a positive impact on decision-making at enterprises.

The moderating role of cloud computing

Quinn et al (2014) pointed out that with cloud computing technology, organizations can make faster decisions by communicating better through sharing and receiving information on the cloud with just an internet connection. Accessing files and software can be done from any device at any time. Nguyen Thi Thu Phuong and Ho Trung Thanh (2020) proposed combining technological advances such as BI (Business Intelligence) with management accounting to improve decision-making capabilities at enterprises. Alshwabkeh et al. (2022) found a significant relationship between the components of accounting information systems and cloud computing and performance in companies. In addition, cloud computing plays a moderating role in the association between system availability, security, integrity, and company performance. The authors also asserted that with the use of cloud computing, enterprises will gain more benefits because reliable data is always available. In two similar studies but different in research samples, Maelah et al. (2021) and Khaliq et al. (2021) concluded that cloud computing indeed had a moderating role in the relationship between management accounting information and decision-making in SMEs, but as we said at the beginning, these two studies researched the impact of each individual dimension of management accounting on decision-making rather than studying the impact of management accounting as a whole on decision-making at SMEs. The scale of variables in these two studies was not specified. In addition, these two studies were conducted in Pakistan and Malaysia, with conditions and levels of SMEs applying management accounting and cloud computing technology differently than in Vietnam.

Therefore, we hypothesized as follows:

H2: The impact of management accounting information on decision-making at enterprises will be higher when enterprises use cloud computing.

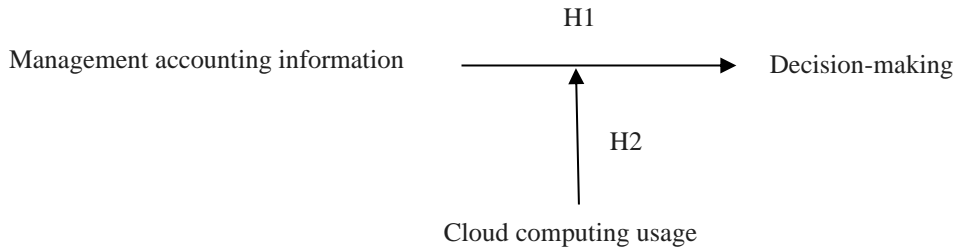


Figure 1: The Research Model

Research Methods

Sample and Data Collection

The study selected a sample size of about 200 SMEs by using the snowball sampling method. Selected enterprises were located in Ho Chi Minh City, Dong Nai, and Binh Duong. These are three industrial hubs in Vietnam. Survey respondents were managers at enterprises. Questionnaires were sent and collected via: (i) face to face, (ii) Mail and (iii) via email. A total of 186 responses were received, larger than the minimum required sample size of 160 (Hair et al., 2014) (The sample size for EFA analysis is $n = 5 * m$ with m being the number of observed variables of the factors. The study was expected to have 32 observed variables, so the minimum sample size was $n = 160$).

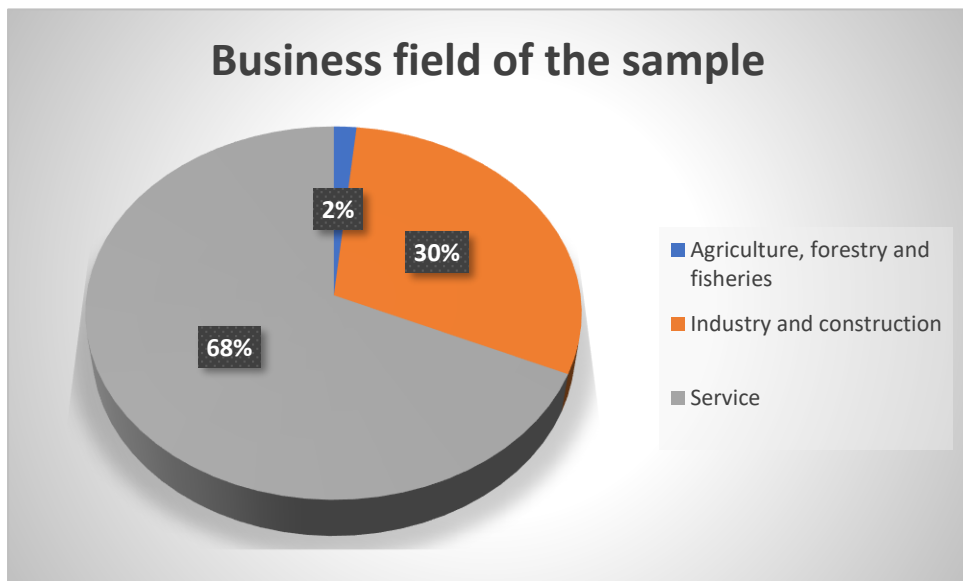


Figure 2: Business field of the sample

Measures

The scale of the factors in the model was referenced from previous studies. Subsequently, interviews with experts were conducted to adjust the model to suit the conditions of SMEs in Vietnam. The chosen experts included those with experience in the field of accounting information systems and management accounting. The method used for the interviews was group discussion. We conducted the discussion with 10 experts including (1) lecturers who taught accounting information systems and management accounting, (2) chief accountants and managers at SMEs that used cloud computing, and (3) experts at companies that provided cloud computing services. This group comprised individuals with solid professional knowledge or practical experience in management accounting information in a cloud computing environment. The selected lecturers had a PhD and had taught accounting information systems or management accounting for 5 years or more. The practical experts had at least 5 years of experience in implementing or using cloud computing. The group discussion was concluded when the collected data reached a saturation point, meaning that no new information emerged from further discussions.

The factor scale 'Management Accounting Information', referenced from the study of Haedr (2012), included 19 observed variables. In this scale, the dimension 'Scope' includes 6 observed variables, the dimension 'Timeliness and Frequency of Reporting' includes 4 observed variables, the dimension 'Aggregation' includes 6 observed variables, and finally, the dimension 'Integration' includes 4 observed variables. The factor scale, 'Decision-Making' was referenced from the decision output scale in the decision-making model of Awasthi & Varman (2003) and included 6 observed variables. The factor scale 'Cloud Computing Usage' is referenced from the cloud computing service quality scale of Monteiro & Vasconcelos (2013) and included 7 observed variables.

The results of interviews with experts showed that all experts agreed with these observed variables and there were no further adjustments.

Data Analysis

The authors collected data and initially processed it using Microsoft Excel software. We checked the reasonableness of the data and checked for empty data.

In the next step, clean data was analyzed using IBM SPSS Statistics 22 software. Firstly, the authors performed Cronbach alpha and EFA tests. This step was conducted to test the reliability, convergence, and discrimination of the scale of factors in this study. Finally, the authors conducted a regression analysis to draw conclusions for the research hypotheses.

RESULTS

The Scale Assessment

To evaluate the reliability, convergence, and discrimination of the scales of factors, the authors conducted Cronbach alpha and EFA tests. Cronbach alpha results showed that all the scales had a Cronbach Alpha of greater than 0.7. The variables in all the scales had a Corrected Item-Total Correlation > 0.3. EFA results showed that the scale of all factors in the research model had KMO greater than 0.5 and less than 1, Sig less than 0.05, Cumulative % of Extraction Sums of Squared Loadings greater than 50% with Eigenvalues greater than 1, all factor loadings were greater than 0.55. Therefore, the scales in this research were reliable, convergent and discriminant. Table 1 details this assessment.

Table 1: The Scale Assessment

Factors and observed variables in the scales	Corrected Item-Total Correlation	Factor loadings
Management Accounting Information (Haedr, 2012) (Using a 5-level Likert scale, respondents were asked to indicate the extent to which each observed variable in the management accounting information scale below is important for decision-making) Scope (Cronbach Alpha=0,908); (KMO=0,871; Sig.=0,000; Cumulative %=68,726; Eigenvalues=1,236)		
Information related to internal events that may occur in the future (new investment projects...)	0,745	0,809
Non-financial information related to the production process (fixed asset performance, employee productivity...)	0,756	0,771
Information that helps quantify the likelihood of future events occurring (probability estimates)	0,762	0,733
Information about macro factors outside the company (economic conditions, population growth....)	0,732	0,742
Information related to external events that may occur in the future (customer preferences, attitudes of government agencies and consumers, competitive threats, production technology developments...)	0,750	0,708
Non-financial information related to the product market (market size, market growth rate...)	0,732	0,735
Timeliness and Frequency of Reporting (Cronbach's Alpha=0,790); (KMO=0,871; Sig.=0,000; Cumulative %=68,726; Eigenvalues=1,236)		
Information that helps managers monitor and control operations is provided immediately upon request	0,619	0,799
Relevant information is automatically provided to managers immediately after being recorded in the	0,592	0,790

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enterprise information system or immediately after processing.		
Reports are provided regularly according to the system and periodically (daily, weekly reports)	0,553	0,708
There is no delay between an event occurring (competitor action, market demand) and relevant information being reported to managers	0,629	0,785
Aggregation (<i>Cronbach's Alpha=0,901</i>); (<i>KMO=0,871</i> ; <i>Sig.=0,000</i> ; <i>Cumulative %=68,726</i> ; <i>Eigenvalues=1,236</i>)		
Information provided about different departments or functional areas within the company (marketing and production, sales centers, costs, or profits)	0,708	0,656
Information on the impact of events over specific periods (summaries, trends, monthly/quarterly/yearly comparisons)	0,709	0,697
The information has been processed to show the impact of events on various functions, such as marketing or production, about specific activities or tasks.	0,774	0,711
Information about the impact of activities in different areas within the company on summary reports (profit, cost, and revenue reports)	0,746	0,785
Information is provided in formats suitable for input into decision models (discounted cash flow analysis, inventory analysis, credit policy analysis....).	0,698	0,745
Information in a format that allows managers to conduct "what if" analyzes	0,762	0,718
Integration (<i>Cronbach's Alpha=0,824</i>); (<i>KMO=0,871</i> ; <i>Sig.=0,000</i> ; <i>Cumulative %=68,726</i> ; <i>Eigenvalues=1,236</i>)		
Information about precise targets for the activities of all departments within the company	0,620	0,782
Information about the impact of decisions other individuals have made on your area of responsibility	0,645	0,770
Information about the impact your decisions will have on other departments of your company	0,643	0,813
Information regarding the impact your decisions will have on your overall company performance	0,683	0,814
Decision-Making (Awasthi & Varman, 2003) (Using a 5-level Likert scale, respondents were asked to evaluate the quality of decision-making at their enterprises based on the observed variables of the decision - making scale below) (<i>Cronbach Alpha=0,872</i>); (<i>KMO=0,900</i> ; <i>Sig.=0,000</i> ; <i>Cumulative %=61,915</i> ; <i>Eigenvalues=3,715</i>)		

The quality and timeliness of information in the cloud computing environment influence decision-makers intuition	0,675	0,779
The time to make and implement decisions at enterprises is reduced when enterprises apply cloud computing	0,693	0,799
The decision-making process at enterprises is standardized when enterprises apply cloud computing	0,719	0,820
Decision-making at the enterprise involves the participation of many related departments thanks to the support of cloud computing	0,655	0,770
Decision-making at enterprises involves the participation of many levels thanks to the support of cloud computing	0,706	0,807
Decision-making on different issues at different levels at the enterprise is made easy thanks to the support of cloud computing.	0,630	0,744

Cloud Computing Usage (Monteiro & Vasconcelos, 2013)
 (Using a 5-level Likert scale, respondents were asked to measure the quality of the enterprise cloud computing services they received based on the observed variables of the cloud computing usage scale)
(Cronbach's Alpha=0,919); (KMO=0,871; Sig.=0,000; Cumulative %=68,726; Eigenvalues=1,236)

The cloud provider is always accountable to your company when changes occur	0,675	0,659
Updating new technologies, answering questions, etc. from cloud computing providers happens quickly	0,732	0,776
Cloud computing providers ensure continuous operations, as well as the ability to restore data at the company if problems occur	0,699	0,744
The cost of using cloud computing is reasonable	0,797	0,760
Cloud computing is effective for use in enterprises	0,904	0,816
Security and data privacy in the cloud computing environment are well guaranteed	0,717	0,695
Cloud computing has good usability in enterprises	0,865	0,815

Hypothesis Testing

The regression method was used to test the proposed hypotheses. We had proposed two hypotheses, one of which, H2, concerned the moderating factor of cloud computing usage. According to Nguyen Dinh Tho (2014), this moderating factor was commonly incorporated into the theoretical model (hypothesis H1) when testing the two research hypotheses. Cloud computing usage was hypothesized to act solely as a moderator, altering only the relationship between management accounting

information and decision-making, without having any direct relationship with decision-making. Testing hypothesis H2 was performed as follows (Nguyen Dinh Tho, 2014):

- (a) A single measurement factor was used to measure Management Accounting Information in the cloud computing environment (calculated as Management Accounting Information* cloud computing usage).
- (b) Management accounting information was classified as a level 2 scale. As such, it was calculated as the average of four dimensions: Scope, Timeliness and Frequency of Reporting, Aggregation, and Integration. Cloud computing usage was classified as a level 1 scale, and it was calculated as the average of the observed variables within its scale.
- (c) Take the factor that measures Management Accounting Information in the cloud computing environment (calculated as Management Accounting Information* cloud computing usage) and let this factor impact the dependent factor (decision-making).

Thus, we had 2 regression models that needed to be tested corresponding to 2 hypotheses H1 and H2. The regression results are presented in Table 2.

- (1) Test the significance of the regression coefficients:

In Table 2, the independent factors of both regression models had a significance value (Sig.) of 0.000, which was less than 0.1. This indicated that the dimensions of the management accounting information factors (Scope, Timeliness and Frequency of Reporting, Aggregation, Integration), and Management Accounting Information in the cloud computing environment, were statistically significantly correlated with the decision-making factor. The confidence level of this correlation was $\geq 90\%$.

Table 2: The Regression Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-1.420	0.312		-4.555	0.000		
Scope	0.337	0.051	0.388	6.575	0.000	0.602	1.662
Timeliness and Frequency of Reporting	0.202	0.051	0.186	3.984	0.000	0.963	1.039
Aggregation	0.307	0.049	0.372	6.224	0.000	0.589	1.699
Integration	0.370	0.047	0.366	7.880	0.000	0.973	1.028
Dependent Variable: Decision-making, R square 0.625, ANOVA sig 0.000							
2 (Constant)	1.378	0.101		13.578	0.000		
Management Accounting Information* cloud computing usage	0.126	0.007	0.796	17.758	0.000	1.000	1.000
Dependent Variable: Decision-making, R square 0.634, ANOVA sig 0.000							

(2) Explanation level of the model

In model 1, R square = 0.625. Thus, 62.5% of the changes in decision-making were explained by the dimensions of management accounting information factors (Scope, Timeliness and Frequency of Reporting, Aggregation, Integration), with a confidence level of over 99%.

In model 2, R square = 0.634. Thus, 63.4% of the changes in decision-making were explained by management accounting information in the cloud computing environment with a confidence level of over 99%.

(3) Model fit

Both models had ANOVA sig = 0.000. So overall, the independent factors were linearly correlated with the dependent factor. As a result, the two linear regression models fit the actual data. Consequently, there was no Autocorrelation.

(4) Check for Multicollinearity

All independent factors had VIF < 10. Therefore, there was no multicollinearity. Thus, the regression results had approved of the two research hypotheses proposed by us.

DISCUSSION AND CONCLUSION

Hypothesis H1 was accepted, showing that management accounting information had a positive impact on decision-making at SMEs. This result was similar to the studies of Mason & Kaplan (1983), Tu Thanh Hoai et al. (2022), Oboh & Ajibolade (2017), Tran Thi Phuong Lan (2019), Ahmad (2017), Horvat & Mojzer (2019), Braim (2020),

Saukkonen et al. (2018). SMEs in Vietnam found that management accounting information was very useful in helping them make the right decisions based on the information provided. In particular, the scope of management accounting information was considered one of its most useful characteristics. It provided both financial and non-financial information about the internal and external environment of the enterprises. This helped managers get more information about competitors and future events. The timeliness and reporting frequency of management accounting information referred to the speed and frequency with which reports, and information were provided as soon as managers requested them. Managers in enterprises appreciated updated information because it allowed SMEs to respond quickly and make decisions effectively. The aggregation dimension of management accounting information involved summarizing information across different stages and departments. This allowed managers to have a comprehensive view of the entire enterprise on which to base their decisions. The integration dimension referred to the interdependence and coordination between different departments of the enterprise in sharing information. Managers of SMEs found this dimension of management accounting information essential in coordinating departments or dependent units to obtain necessary information related to decision-making. Most SMEs in Vietnam currently did not pay attention to management accounting (Huynh Tan Dung & Huynh Thi Thanh Thao, 2021). The decisions were made mostly from the experience of managers, so it was not highly scientific. Therefore, the results of this research will be evidence and motivation for SMEs in Vietnam to increase the use of management accounting to be able to make the most optimal management and business decisions.

The accepted hypothesis H2 showed that the impact of management accounting information on decision-making at enterprises was higher when enterprises used cloud computing. This result was similar to the studies of Quinn et al. (2014), Nguyen Thi Thu Phuong and Ho Trung Thanh (2020), Alshawabkeh et al. (2022), Maelah et al. (2021), Khaliq et al. (2021). The research results were consistent with the fact that cloud computing technology helped improve real-time access and sharing of information. It also increased the volume, speed, and capacity of data processing at enterprises, thereby improving the timeliness and quality of decision-making at SMEs. In addition, adopting cloud computing helped improve competitiveness and business capacity for SMEs by cutting costs related to applying modern information technology. With cloud computing always updated with the latest technical advances, enterprises can focus more on issues related to business. They only needed to pay periodic usage costs. The Ministry of Information and Communications in Vietnam set a goal in early 2021 to support SMEs in digital transformation. Cloud computing is one of the effective tools to help SMEs move faster in this transformation process. In the future, the number of SMEs enjoying the benefits that cloud computing brings to them will increase.

To address our hypotheses, we first conducted a literature review and examined the background theory of RBV. Second, we conducted interviews with groups of experts. Lastly, we performed regression analysis on a sample of SMEs in Vietnam, specifically those concentrated in Ho Chi Minh City, Dong Nai, Binh Duong, and

Binh Dinh, spanning all fields. These SMEs have been using cloud computing for 1 year or more. Based on these steps, we drew the following conclusions:

1. Management accounting information positively impacted decision-making in SMEs in Vietnam. The regression results indicated that the dimensions of management accounting information factor (Scope, Timeliness and Frequency of Reporting, Aggregation, and Integration) explained 62.5% of the changes in decision-making in these SMEs, with a confidence level of over 99%.
2. The strength of the relationship between management accounting information and decision-making in SMEs in Vietnam was moderated by cloud computing usage. The regression results indicated that management accounting information in the cloud computing environment explained 63.4% of the changes in decision-making at these SMEs, with a confidence level of over 99%.

So, we concluded that cloud computing played a moderating role in the relationship between management accounting information and decision-making at SMEs in Vietnam. The regression results of model (2) in Table 2 showed that Sig. = 0.000, which is less than 0.1. Thus, the impact of management accounting information on decision-making at SMEs in Vietnam will be higher when they use cloud computing.

CONTRIBUTIONS AND LIMITATIONS

Theoretically, the research demonstrated the impact of management accounting information on decision-making at SMEs, as well as the moderating role of cloud computing in this relationship. All four dimensions of management accounting information: Scope, Timeliness and Frequency of Reporting, Aggregation, and Integration, were found to influence decision-making at SMEs. Furthermore, if enterprises utilized cloud computing, the influence of management accounting information on decision-making at SMEs will be heightened.

Practically, the results of this research will assist managers at SMEs in Vietnam in recognizing the importance of management accounting information, as well as demonstrating how the dimensions of management accounting information influence decision-making. Making accurate and effective decisions is crucial, as it directly affects an enterprise's competitiveness in the market. Additionally, the role of cloud computing has been highlighted. In the context of the digital economy being a global trend, the need to access and share information in real-time and apply the most modern technological advances is not only necessary for large enterprises. SMEs cannot be left out of this trend. Therefore, SMEs need to strategize to apply cloud computing to meet new requirements in the current situation.

There are some limitations in our research. First, due to time and budget constraints, the research sample only included SMEs in certain provinces and cities.

Future studies should select samples from various regions in Vietnam, which also have a significant number of SMEs, to provide research results that are more representative of SMEs in Vietnam. Second, the research relies on quantitative methods, collecting survey data and then analyzing regression to produce research results. This may reflect the subjective opinions of managers at SMEs. Future studies should include more analysis of enterprise results based on secondary data from the period before and after applying cloud computing. This would present the research results in a more objective way.

ACKNOWLEDGEMENTS

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research is funded by University of Economics Ho Chi Minh City, Vietnam and Quy Nhon University, Vietnam.

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