

THE IMPACT OF MANAGEMENT ACCOUNTING INFORMATION SYSTEM AND ENVIRONMENTAL UNCERTAINTY ON THE QUALITY OF MANAGEMENT ACCOUNTING INFORMATION

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Abstract. This reaserach is to analyze the impact of the management accounting information system, perceived environmental uncertainty to the quality of management accounting information on major industries in the province of South Sumatra. This study focuses on management accounting information system that is critical to the unpredictability of the environment that occurs, especially environmental uncertainty that comes from external factors. The unit of analysis in this study is the individual that are the top manager, production manager, and marketing manager in big industrial enterprises in the province of South Sumatra. This research is an explanatory research in which data are collected through a mail survey. To see the relationship between the latent variable with a manifest variable as well as to see the relationship between exogenous with endogenous variables, this research used a structural equation modeling by using LISREL software version 8.8. The result showed that the management accounting information system and perceived environmental uncertainty significantly affect the quality of management accounting information. Limitation of this study is the small value of the loading factor of each of the variables examined. This is an opportunity for subsequent researchers to investigate other variables that affect the quality of management accounting information.

Keywords: management accounting information system, environmental uncertainty perceived, quality of management accounting information

I. INTRODUCTION

Competition increased business today requires companies to utilize existing capacity as possible in order ahead of the competition. Therefore, management needs to have the ability to see and use the opportunities, identify problems and to select and implement appropriate adaptation process. Management is also obligated to maintain viability and control the organization to achieve the expected goals.

One work program to achieve these objectives is increasing the use of information systems. This increased information's value within the company will offer new opportunities to the business [1][2]. The information system is a fairly important part of the organization's control system. Therefore, it needs to be managed well, so it is expected to contribute positively to support the success of the organization's control system. Romney [3] states that the main benefits of the information are to reduce uncertainty, decision support, and encourage better planning and scheduling of work activities.

The information system is a collection of elements that are interconnected each other to form a single unit for integrating the data, processing and storing, and distributing

the information to support decision making and to exercise control over the running of the company According to Azhar Susanto [4] the elements that make up an information system consisting of hardware, software, brain ware, databases, procedures and communication networks. These elements must work together and be well integrated [5]. Therefore, companies should design and implement information systems in accordance with the conditions of the company. According to Laudan & Laudan [6], O'Brien and Maracas [7] and De Lone & Mc Lean [8], the information system in the measure of organization, management, and technology. The third section should be well integrated.

Understanding the environment (environmental scanning) is the first step that must be done in a strategic process management [9][10]. Analyzing the company's internal and external environment is made to produce a picture of the strengths, weaknesses, opportunities and threats owned. The results of the environmental analysis should be followed by the formulation of a strategy by determining the mission, goals, strategies and appropriate policies. Companies will be able to achieve the goals set when the power company exceeds its weakness . In a SWOT analysis, opportunities in

question are environmental factors outside the company are positive. While the threat is outside the negative environmental factors .

Environmental company/ business has changed completely with the uncertainty the higher. The rapid development in the field of information technology, transportation, communication and production technology (mechanization) led to remarkable changes in the business world. The business environment is changing so rapidly, makes everything unpredictable.

In these conditions, the information will be a very useful commodity for companies in planning, controlling, and making decision. Information needed is quality information and the use value. Quality information is information that is accurate, timely and relevant [11], whereas valuable information related to integrating the benefits of the information obtained by the costs incurred to obtain it. It also said that the information will reduce the uncertainty faced [12].

Research Objective

This research Objective is aimed to:

1. Investigate the impacts of management accounting information systems on the quality management accounting information.
2. Investigate the impacts of environmental uncertainty perceived on the quality management accounting information.

II. THEORETICAL FRAMEWORK

Management accounting information system and quality of management accounting information.

In managing the company, we need tools that can assist management to run the business. That tool is applied information systems and designed and developed in the face of changes and challenges of the business.

Construction of enterprise information system aimed at reducing the problems facing the company, opportunity, and competition. With the information system is expected to increase in performance, improving the quality of information, improved economics, improved control, increased efficiency and improved quality of service. Implementation of information systems effectively and efficiently will help managerial performance.

The main function of the information system is to process data into information. Information is basically a resource as well as plant and accounting equipment as an information system to identify, collect, and communicating economic information about a business entity to a variety of people. The information is useful data that is processed so that it can be used as the basis for making the right decision.

The uncertainty of the environment and the quality of accounting information management

Chenhall and Morris [13] found that if the environment uncertainty increases, managers will consider using external information nonfinancial and ex-ante in decision making. If uncertainty increases, the use of a wide scope of management accounting information is also increasing, because such information can improve the accuracy of decisions and reduce uncertainty.

Besides affecting the information needs of a wide scope, uncertainty also affects the need for timely information (timeliness). In a situation of uncertainty, managers will realize that they need to respond quickly to changes that can not afford predicted, and as a consequence, they will need timely information.

III. RESEARCH METHOD

This study uses a quantitative research approach. The research method used by the writer is explanatory research method.

The unit of analysis chosen is a large industry in the province of South Sumatra observation units (respondents) is the production manager, marketing manager, information systems manager, financial manager and head of the company. There were 92 large industrials in South Sumatra Province. Thus, the total population is 460 people manager. The sample size is determined by observing the analytical techniques used to test the hypothesis that structural equation modeling (structural equation model / SEM).

Empirical Method

Output for research model is as on figure 1 below:

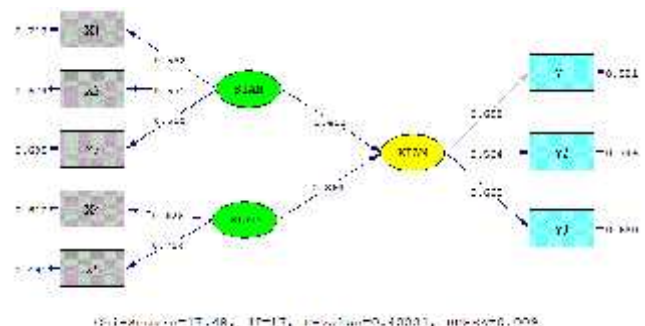


Fig 1. Hybrid Model Calculation Results SEM (Standardized Coefficient)

Note:

- X1 = Dimension Organization
- X2 = Dimension Management
- X3 = Dimension Technologies
- X4 = Internal Environmental Dimension
- X5 = External Dimensions Environment
- Y1 = Content Dimension
- Y2 = Time Dimension
- Y3 = Format Dimension
- SIAM = Accounting Information Systems Management
- KLYD = Perceived environmental uncertainty
- KIAM= Quality Information Management Accounting

Summary for the research hypothesis is as on table below:

Table 1
Table of test results

Structural Equation		Standar rdize	Standar rt Error	tvalue / F value	Result (t_{hitung} 1.96)
Endogen Variabel	Exogen Variabel				
Quality Informa tion Manag ement Accoun ting	Management accounting information system	0.493	0.124	3.984	Significant (Parsial)
	Perceived environmental uncertainty	0.364	0.120	3.030	Significant (Parsial)
	Management accounting information system and Perceived environmental uncertainty	$R^2 =$ 0.584	0.113	242.86	Significant (Simultan)

Table 2
Hypothesis Testing Results

Hypothesis	Description	Decision
H ₁	Management accounting information system to Quality Information Management Accounting	Accepted
H ₂	Perceived environmental uncertainty to Quality Information Management Accounting	Accepted
H ₃	Management accounting information system and Perceived environmental uncertainty simultan toward to Quality Information Management Accounting	Accepted

Below are the explanations of table 2:

Hypothesis 1:

Hypothesis 1 states that Management accounting information system has impacts on Quality Information Management Accounting. The test results indicate that the estimation

coefficient is 0.493 with T value 3.984 (significant at level 1.96). The figure means that there are an impact and significance of the variable Management accounting information system toward to Quality Information Management Accounting, hypothesis 1 is accepted.

Hypothesis 2:

Hypothesis 2 states that Perceived environmental uncertainty has an impact on Quality Information Management Accounting. The test results indicate that the estimation coefficient is 0.364 with T value 3.030 (significant at level 1.96). The figure means that there are an impact and significance of the variable Perceived environmental uncertainty toward to Quality Information Management Accounting, hypothesis 2 is accepted.

Hypothesis 3:

Hypothesis 3 states that Management accounting information system and Perceived environmental uncertainty has an impact on Quality Information Management Accounting. The test result indicates that the estimation coefficient is 0.584 with F value 242.86 (significant on level 3.022). The figure means that there are an impact and significance of the variable Management accounting information system and Perceived environmental uncertainty toward to Quality Information Management Accounting, hypothesis 3 is accepted.

IV. DISCUSSION

The Impact of Management Accounting Information System of the Quality of Accounting Information Management

Based on Figure 1. above, it turns t count of the influence of the Management Accounting Information Systems Accounting Information Quality Management amounted to $3.984 > 1.96$, so it can be said to be significant, thus Accounting Information Systems Management and significant effect on the Quality of Accounting Information Management in the major industries in the province South Sumatra. The major direct influence on the Management Accounting Information Systems Accounting Information Quality Management amounted to 0.493 or 49.3%, means the better of Accounting Information Systems Management, the Accounting Information Quality Management will be increased / high, thus Hypothesis 1 received (see Table 2). These results indicate that the quality of information refers to the quality of the output produced by the information system, thus the better the Information Systems Management Accounting may cause the quality to achieve optimal management accounting information.

The results of this study support the idea expressed by Kirmizi [14] states that the Management Accounting Information System is designed to provide managers. Susanto [15] states that the accounting information system integrated will produce quality information anyway. Each element in the information system (organization, management, and technology) must constitute an integrated whole and harmonious.

Accounting Information Systems Management aims to improve the quality of information [16]. Similar disclosed Duggan & Reichgelt [17] that the information system should collect data and turn it into information that has quality. This was expressed also by Susanto ., [18] which states that the accounting information system the emphasis to quality information. Also disclosed by Turner & Weickgenannt [19] processes based information system that provides high-quality information to the management. Likewise disclosed by Jackson, et al [20] The information system has some benefits to improve the speed and quality of information exchange, reduce lead time, reduce processing costs.

The dimensions of the dominant form of accounting information systems management are the management of information systems, while the dimensions of the dominant form of quality management accounting information are content information. It becomes the findings in this study that the management information system that will either be able to improve the quality of accounting information management, especially the content of such information.

Perceived Environmental Uncertainty on the Quality of Accounting Information Management

Based on Figure 5.1. above, it turns t count of environmental uncertainty perceived influence on the quality of management accounting information is equal to $3.030 > 1.96$, so it can be said to be significant, thus the perceived environmental uncertainty and significant positive effect on the quality of management accounting information on a major industry in the province South Sumatra.

The major direct influence of perceived environmental uncertainty on the quality of management accounting information is equal to 0.364 or 36.4%, means the better the manager can perceive the uncertainty of the environment, the quality of management accounting information produced by the company will be better, it is thus Hypothesis 2 accepted (Table 2).

The most dominant indicator of perceived environmental uncertainty is the external environment, while the most dominant indicator of the quality of management accounting information is time information delivery. The findings in this study is that if managers are able to perceive the external environment consisting of customers, competitors, social, political and technology, it will be the quality of information

which is derived mainly at the time of delivery of such information to parties interested in the company.

This finding is consistent with the quality of information being addressed by O'Brien & Maracas [21], is that the information generated from the information system is a form of such information must be clear, detail, compliance forms, representation and media enough so that the users feel the information the benefits of what they receive.

This study found that managers are able to predict the uncertainty of the environment it is increasingly able to use the relevant management accounting information in decision making. Even the perception of environmental uncertainty has the greatest influence than other exogenous variables. This study is in line with studies previously conducted, among others, conducted by Gordon & Narayanan, [22]; Gull[23]; Mia, [24] ; Gull & Chia, [25]; Fisher, [26]; Agbejule[27].

The decision-makers who perceive higher levels of uncertainty will increasingly require management accounting information systems to provide information related to the situation at hand[28]. While Chenhal & Morris [29] found that when the uncertainty of the environment is at relatively high-level organizations tend to use management accounting information that is broad scope (non-financial). The findings are reinforced by the findings Chenhall[30] that the higher the uncertainty of the external environment, the managers require sophisticated management accounting information to deal with the environment.

The environmental uncertainty facing major industry in the province of South Sumatra can be categorized in a very high environmental uncertainty, uncertainty environment dominated by the external environment such as customers, suppliers, competitors, social, political and technological. Based on the answers of respondents that need attention are the supplier, meaning that if the company wants to continue producing basis, the company's management should be able to predict the state of the supplier of raw material suppliers. Because of the availability of raw materials into the company's main capital in production. Thus it can be interpreted that the management company has been able to predict the events of the external and internal that may impact the company's operations.

Advances in information technology and communication turned out to support the company's ability to read the business environment faced. With easy to access the company's sources of general information, then management can adjust production and marketing strategies to suit the conditions.

The inability of the company to analyze the environment seen also with the availability of quality management accounting information. Of the four dimensions used to measure the quality of management accounting information that is the submission of the information, the information content and format of the information is all included in the

information provided. Availability of quality management accounting information is a provision for managers in a decision-making process.

The Impact of Management Accounting Information System and Environmental Uncertainty on The Quality of Management Accounting Information

In this section will be testing the hypothesis about the influence of exogenous variables management accounting information system (1) and perceived environmental uncertainty (2) jointly against endogenous variable quality of management accounting information (1). Results obtained by using 8.80 lisrel program for structural equation models, according to the proposed hypothesis can be seen as a structural equation below.

$$KIAM = 0.493*SIAM + 0.364*KLYD, \text{ Errorvar.} = 0.416, R^2 = 0.584$$

(0.124)	(0.120)	(0.113)
3.984	3.030	3.672

Based on Figure 2 above, it turns out the value of F from the influence of management accounting information systems and environmental uncertainty perceived together to quality management accounting information is equal to $242.86 > 3.02$, so it can be said to be significant, thus the system of management accounting information and uncertainty perceived environmental jointly positive effect on the quality of management accounting information, it is thus the third hypothesis is accepted (see Table 2). The great contribution of jointly variable accounting information systems management and environmental uncertainty perceived to quality management accounting information is at 58.4%, while the remaining 41.6% is influenced by other factors, such as leadership style organization, structural corporate organizations, user satisfaction and many other factors that cause that encourages further research to conduct different studies with this research.

Thus we can conclude the quality of accounting information management in large industries in South Sumatra Province which is dominated by the content of information was positively affected by the accounting information system of management which is dominated by the management of the management information system of management accounting and environmental uncertainty perceived dominated by environment external company. However, the partial factor management accounting information system has the most dominant influence on the quality of management accounting information. This analysis resulted in a finding that the quality of management accounting information produced by big industry in South Sumatra province could increase if management manager accounting information system management laid out well and the manager can be perceived

with appropriate external environment affecting the company consists of the competitors, customer, social, political and technological.

V. CONCLUSIONS

1. Information Systems Management Accounting proved a positive and significant effect on the Quality of Accounting Information Management, The dimensions of the most dominant in management accounting information system that is management information systems manager.
2. Uncertainty perceived environment proved positive and significant impact on the quality of management accounting information. with great influence. The dimensions of the most dominant on the perceived environmental uncertainty that the company's external environment.
3. The accounting information system of management which is dominated by the management of information systems managers and perceived environmental uncertainty is dominated by the external environment together proved positive and significant impact on the quality of management accounting information is predominantly shaped by the content of information.. Partially, management accounting information system is predominantly affect the quality of accounting information management.

REFERENCE

- [1] Laudon Kenneth C & Jane P. Laudon, 2005, *Management Information Systems : New Approaches to Organization & Technology*, International Edition, Prentice Hall, New Jersey
- [2] Bentley, Lonnie D. & Whitten, Jeffrey L. 2007. *Systems Analysis & Design for the Global Enterprise*. McGraw-Hill Irwin. Seventh Edition, New York
- [3]. Romney Marshall B & Paul John Steinbart, 2006, *Accounting Information Systems*, 9th ed, Prentice Hall, New Jersey (2006),
- [4] Azhar Susanto, 2008. *Sistem Informasi Akuntansi : Konsep dan Pengembangan Berbasis Komputer*, Edisi Perdana, Cetakan Pertama, Lingga Jaya, Bandung
- [5] O'Brien, James A. & Marakas, George M. 2008. *Introduction To Information Systems*, Fourteenth Edition, MCGraw-Hill Irwin, New York
- [6] Laudon, Kenneth C and Jane P. Laudon. 2013. *Management Information Systems: New Approaches to Organization & Technology*. International Edition. New Jersey: Prentice Hall.
- [7] O'Brien, James A. & Marakas, George M. 2011. *Introduction To Information Systems*, Fourteenth Edition, MCGraw-Hill Irwin, New York
- [8] De Lone, WH & McLean, ER. 2003. *The DeLone and McLean Model of Information Systems Success : a ten year Update*, Journal of Management Information Systems, Vol 19 No 4, pp-9-30
- [9] Robbins , Stephen P. and Coulter, Mary. 1999. *Management*. 11th edition. Prentice Hall
- [10] Wheelen, T.L., dan Hunger, J.D, 2002, *Strategic Management and Business Policy*, Fourth Edition, USA : Addison-Wesley Publishing Company

- [11] Azhar Susanto, 2008. Sistem Informasi Akuntansi : Konsep dan Pengembangan Berbasis Komputer, Edisi Perdana, Cetakan Pertama, Lingga Jaya, Bandung
- [12] Romney, Marshall B. and Paul John Steinbart. 2012. *Accounting Information System*. 12th Edition. England: Pearson Education Limited.
- [13] Chenhall. R.H. dan Morris, D. 1986, "The Impact of Structure, Environment, and Interdependence on the perceived usefulness of Management
- [14] Kirmizi Ritonga, 2011. "Perceived Environment Uncertainty, Management Accounting Information System and Decentralization." *Journal UII*
- [15] Azhar Susanto, 2008. Sistem Informasi Akuntansi : Konsep dan Pengembangan Berbasis Komputer, Edisi Perdana, Cetakan Pertama, Lingga Jaya, Bandung
- [16] Laudon, Kenneth C and Laudon, Jane P. 2008. *Essential of Management Information System: Managing the Digital System*. Sixth Edition. Pearson Prentice Hall
- [17] Duggan, Evan W, and Reichgelt, Han. 2006. *Measuring Information System Delivery Quality*. Ide Group Inc
- [18] Azhar Susanto, 2008. Sistem Informasi Akuntansi : Konsep dan Pengembangan Berbasis Komputer, Edisi Perdana, Cetakan Pertama, Lingga Jaya, Bandung
- [19] Turner, Leslie and Weickgenannt, Andrea. 2009. *Accounting Information System : Controls and Process*. John Wiley & Sons Inc.
- [20] Jackson, Steve, Gregory Jenkins, Roby B. Sawyers, 2009, *Managerial Accounting: A Focus on Ethical Decision Making fifth ed, South-Western College Pub : Cengage Learning*
- [21] O'Brien, James A. & Marakas, George M. 2011. *Introduction To Information Systems*, Fourteenth Edition, MCGraw-Hill Irwin, New York
- [22] Gordon, L.A. and V.K. Narayanan, 1984, "Management Accounting System, Perceived Environmental Uncertainty and Organization Structure: An Empirical Investigation", *Accounting Organization and Society*, Vol.9, No.1 pp. 259-285
- [23] Gul, F.A. 1991, "The Effect of Management Accounting System and Environmental Uncertainty on Small Business Manager's Performance," *Accounting and Business Research*, vol. 22, No. 85. 57-61. Guimaraes, T., M. Igbaria, and M. Lu. 1992. *The Determinants of DSS Success: An Integrated Model*. Decision Sciences Vol. 23 No. 2:409-430.
- [24] Mia, L., & Chenhall, R.H., 1994, *The Usefulness of Management Accounting System, Functional Differentiation and Managerial Effectiveness*. *Accounting Organization and Society*, 19, 1-13
- [25] Gul and Chia, Y.M, 1994, "The Effect of Management Accounting Systems, Perceived Environmental Uncertainty and Decentralization on Managerial Performance: A Test of Three-Way Interaction". *Accounting, Organizations and Society*. Vol. 19. Pp 413-426 1994;
- [26] Fisher, Cathy 1996, "The Impact of Perceived Environmental Uncertainty and Requirements: A Research Note," *Accounting, Organization and Society*, Vol. 21 No. 4, 361-369
- [27] Agbejule, A., 2005, "The Relationship Between Management Accounting Systems and Perceived Environmental Uncertainty on Managerial Performance:" A Research Note, *Accounting and Business Research*, vol. 35, No. 4, hal. 295-305
- [28] Mia, L., & Chenhall, R.H., 1994, *The Usefulness of Management Accounting System, Functional Differentiation and Managerial Effectiveness*. *Accounting Organization and Society*, 19, 1-13
- [29] Chenhall. R.H. dan Morris, D. 1986, "The Impact of Structure, Environment, and Interdependence on the perceived usefulness of Management
- [30] Chenhall, R. H., 2005. Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: an exploratory study. *Accounting, Organizations and Society*.