

The Mediating Effects of Strategic Management Accounting Information Use on the Relationship between Information Literacy and Managerial Performance

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This study attempt to examine the mediating effect of Strategic Management Accounting (SMA) information use on the relationship between information literacy and mangerial performance. Using multiple regression as analitycal method, 93 responses from 93 managers of Bank Riau Kepri, Indonesia, were analyzed. The results of this study support the direct effect of information literacy and SMA information use on managerial performance. Futher analysis of mediating effect of SMA information use suggests that SMA mediates the relationship between information literacy and managerial performance. The findings of this study suggest that the information literacy and SMA information use are an important factor to improve the level of managerial performance.

Keywords: information literacy, strategic management accounting (SMA), managerial performance

1. Introduction

In carrying out the functions of management, managers are often faced with a problem that requires them to make decisions. To take the right decisions, both strategic and tactical, managers need information as a basis for decision making.

In order to process the information appropriatly managers need an ability called information literacy skills. Information literacy is ability to recognizie, identify and use information effectively (Bruce, 1999). With the information literacy skills, managers will be able to decide what information s/he need, when do s/he need it, how to get it, and in what form the information is (Drucker, 1999).

To make the right decisions in the midst of competition and changes in uncertain business environment, managers need market or external environment oriented information, focusing on competition, long-term and future oriented (Lord, 1996). Such information is generated by the Strategic Management Accounting (SMA). SMA is the analysis of management accounting data about a business and its competitors that are used to develop and monitor business strategy (Simmonds, 1981). By basing decisions based on SMA information, managers will have the knowledge and a broader perspective on markets and competitors. This will help managers to formulate anticipatory strategy to deal with the changing business environment and eventually lead managers to make good decisions. Appropriate

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decision in carrying out the functions of management will improve managerial performance, which in turn will help boost the performance of organizations.

Prior studies have shown that the use of SMA information has a positive influence on organizational performance. Guilding, Cravens and Tayles (2000) have found that the SMA information usage has been related to greater performance. Said, et.al (2010) have found that the use of SMA information has a positive effect on the performance of public sector organizations in Malaysia. Sari, Ainudin, and Abdullah (2006) also have found that the fit between SMA information use with business strategy have a positive influence on organizational performance. On the other hand Ah Lay and Jusoh (2011) have found that SMA information strengthen the relationship between business strategy and organizational performance. However, no studies were conducted to find out the effect of SMA information use on managerial performance. Yet managers are those who are directly using SMA information, and therefore the influence of SMA information usege on managerial performance needs to be investigated further.

The idea of information literacy has been of growing concern in education sectors for a number of years. However research that links information literacy skill to the workplace is lacking (Klusek and Bornstein, 2006). Whereas this capability is theoritically important to be owned by an individual especially manager who use information frequently (Bruce, 1999). Therefore, further empirical investigation on the effect of information literacy toward managerial performance is needed.

The research was carried out with several objectives. First, to provide evidence on the relationship between information literacy and managerial performance. Second, to show the relationship between information literacy and SMA use. Third, to provide evidence on the relationship between SMA information use and managerial performance. Finally, the research carried out in order to provide empirical evidence about the mediating effect of SMA information use has on the relationship between information literacy and managerial performance.

The remainder of this paper is structured as follows. The next section provide a review of relevant literature and hypotheses underpinning this study. Section 3 outlines the methodology and model. Data analysis and findings are presented in section 4. A summary and conclusion are provided in the last section.

2. Literature Review and Hypothesis Development

2.1 Information Literacy

The term information literacy was first introduced by Paul Zurwosky in 1974. Information literacy refers to the ability to utilize a variety of tools and information sources to solve problems. Information literacy can be defined as an individual's ability to identify a set of information, evaluate and use information effectively (Mishra and Mishra, 2010). According to American Library Association (ALA, 1989) people who are information literate are good at knowing when they have a need for information, identifying information needed to address a given problem or issue, finding needed information, evaluating information, using the information effectively to address the problem or issues at hand.

Bruce (1999) define information literacy as peoples' ability to operate effectively in an information society. Information literacy involves critical thinking, an awareness of personal and professional ethics, information evaluation, conceptualizing informations needs, organizing information, interacting with information professionals and making effective use of information in problem-solving, decision-making and research (Bruce, 1999).

According to Adam (2009) the benefit of information literacy skills are helping in decision-making, creating new knowledge, and creating individual learners in the era of economy knowledge. Furthermore, Doyle (1992) states that information literacy skills enables an individu to determine accurate and complete information as a basis for decision-making, determine the limits of the information needed, formulate information needs, identify potential sources of information, develop strategies for successful information retrieval, access the needed information effectively and efficiently, evaluate information, organize information, incorporate selected information into one's knowledge base and use information effectively to accomplish a specific purpose. Information literate person will have the ability and skills, knowledge, attitude and control requirements (Breivik, 2005).

2.2 Information Literacy and Managerial Performance

Information literacy skills are an important ability possessed by managers as information users and decision makers (Drucker, 1992). Information literacy skills will enable managers to identify information needs, identify sources of information, evaluate information, organize and integrate information effectively, so managers will be able to make an effective decision. Correct and quick decisions made by managers would help managers to hold his managerial role and managerial performance can be improved. Thus, information literacy can affect managerial performance. Based on this argument, the first hypothesis is proposed:

H₁: There is a significant positive relationship between Information Literacy and Managerial Performance.

2.3 SMA Information Use

According to Simmonds (1981), SMA emerged in an attempt to achieve a competitive advantage. SMA is defined as a system that can provide and analyze management accounting data of a company compared to competitors, and so the data and this information is used to assist and monitor the company's strategy.

Unlike Simmonds (1981), Shank and Govindarajan (1993) used the term strategic cost management to replace SMA term. Strategic cost management is used to determine the strategic cost through value chain analysis, cost driver analysis, and analysis of competitive advantage.

Bromwich (1990) expanded the definition of SMA by adding that SMA not only collect data about business and competition but also make an assessment of the

competitive advantage or added value to which a product or service of a company compared to other products or services.

From various definition of SMA (Simmonds, 1981; Bromwich 1990; Bromwich and Bhimani 1994; Palmer 1992; Shank and Govindarajan 1992), Sari (2005) and Sari, Ainuddin and Abdullah (2006) concludes that SMA has three main elements, which are the information and analysis of competitor and competitive position; information and analysis for performance evaluation and strategic costs and the information and analysis of cost reduction.

2.4 Information Literacy and SMA Information Use

SMA is a broader management accounting information that cover financial and non-financial information, and externally oriented. To use SMA information appropriately, managers need the ability that allows them to identify, find the sources and interpret the SMA information appropriately. With the information literacy skills, managers are able to identify the information they need, so that managers can use SMA information that are wider in scope more efficiently. In addition, the information literacy skills will also be enable managers to use management accounting information more accurately and extensively, because managers will be able to evaluate the information they received through the information literacy skills they have. Thus, information literacy affects the use of SMA information. Based on this argument, the second hypothesis is formed:

H₂: There is a significant positive relationship between Information literacy and the SMA information use

2.5 SMA Information Use and Managerial Performance

Through SMA information use that has a broader scope and more focused on the external environment, managers are expected to take more informed decisions to face the changes in uncertain environment. More informed decisions will lead managers to work effectively and efficiently in an effort to achieve organizational goals, and this will improve managerial performance. Therefore, the use of SMA information will have an effect on managerial performance. Based on this argument, the third hypothesis can be established:

H₃: There is a significant positive relationship between the SMA information use and managerial performance

2.6 Information Literacy, SMA Information Use and Managerial Performance

To face the uncertain business environment, managers need SMA information (Shank, 2007). SMA is the provision and analysis of management accounting data about a business and its competitors, for use in developing and monitoring the implementation of business strategy (Simmonds, 1981). Managers with information literacy skills, will be able to use SMA information efficiently and effectively. Information literacy skills will enable managers to identify the information they need,

so that managers with information literacy skills will be more extensive in using SMA information that would help them to make decisions in order to face the environment.

By using SMA information, managers will be able to make long term and strategic decisions, to face uncertain business environment. Therefore, as decision makers, managers not only need the ability to process information to make decisions effectively but also managers need SMA information as a basis for decision-making to improve their performance. Thus, information literacy will affect managerial performance through the use of SMA information. Based on this argument the fourth hypothesis is proposed:

H₄: SMA Information use mediates the relationship between information literacy and managerial performance

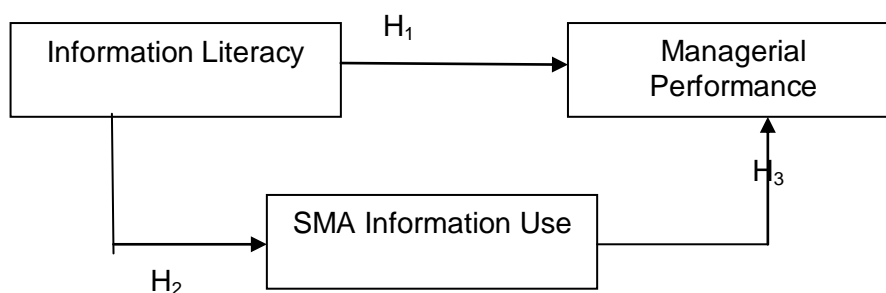


Figure 1: Conceptual Framework

3. Methodology

3.1. Sampling Procedure and Data Collection

This study uses a structured questionnaire distributed to department, division and branch managers of Bank Riau Kepri, Indonesia. A total of 178 set of questionnaires have been distributed, either hand delivered or sent by post. This amount represent 50% of the population. Convenience sampling method was used due to time and cost consideration. Respondents are selected based on convenience in accessibility to the researcher (Sekaran 2006).

3.2. Variables and Measurement

3.2.1. Information Literacy

Information literacy is the ability to identify, access, locate, evaluate and use information effectively. Indicators used to measure information literacy skills are adapted from the model of Seven Pillars created by Sconull (2011). This research instrument measures information literacy skill through seven indicators, which are identify, scope, plan, gather, evaluate, manage, and present. This variable was measured using 15 items with 7 points Likert scale ranging from strongly disagree (1) to strongly agree (7).

3.2.2. SMA Information Use

SMA defined as information that is financial and non financial, long-term, future-oriented and focuses on the external environment of a business organization. The measurement of SMA information use consist of 10 items which is adopted from Guilding, Gravens and Tayles (2000) and Sari (2005) with appropriate modification for banking industry. Respondents are asked to rate on a 7 point scale ranging from never use at all (1) to extensively use (7) on information and analysis related to competitive position monitoring, competitor appraisal based on financial statement, competitor cost assessment, strategic pricing, quality costing, value chain costing, benchmarking and financial and non financial information.

3.2.3. Managerial Performance

Managerial performance is defined as how effective managers in performing managerial functions related to planning, investigating, coordinating, evaluating, supervising, staffing, negotiating and representing. Managerial performance is measured by a self-rated nine –item scale developed by Mahoney, Jerdee, and Carroll (1965). Respondend are asked to rate on seven point scale ranging from 1 (well below average) to 7 (well above average) the extent to which their performance was below or above average on each item.

3.3 Data Analysis

The research hypothesis was tested using regression analysis. H_1 , H_2 and H_3 were tested by running simple linear regression model. The mediating effect of SMA information use (H_4) is tested by following the procedure outline by Frazier, Barron, and Tix (2004). The procedure consist of four steps as follows:

1. Indicate that the information literacy (IV) has a significant effect on managrial performance (DV).
2. Indicate that information literacy (IV) has a significant effect on SMA information use (MV).
3. Showed that SMA information use (MV) has a significant effect on managerial Performance.
4. Showed that the strength of information literacy (IV) on managerial performance (DV) reduced or become zero after SMA information use as a mediating variable incorporated into the model.

Mediating variable can act as a full or partial mediator. If, after the inclusion of mediating variable (SMA information use) the effect of independent variable (information literacy) on the dependent variable (managerial performance) become zero, then the mediating variable (SMA information use) acts as a full mediator. However, if after the inclusion of the mediating variable (SMA information use), the influence of the independent variable (information literacy) on the dependent variable (managerial performance) is only reduced from the previous (greater than zero), then the mediating variable (SMA) acts as partial mediator.

4. Findings

4.1 Descriptive Statistics

Of the 178 questionnaire distributed, 94 were returned representing a response rate of 52.81%. However, due to some left information, 1 set questionnaire was dropped. 10 division managers, 22 branch managers and 61 department managers were participate in this study. Demografic information was collected regarding age, gender, education background, job tenure, and job position. Table 1 reports the descriptive statistics for the demografic variabels.

Table 1 Descriptive Statistics of Demografic Variables

	Frequency	Percentage (%)
Gender		
• Male	75	80.65 %
• Female	18	19.35 %
Ages		
• 20- 30 years	2	2.15 %
• 31 - 40 years	40	43.01 %
• 41 – 50 years	36	38.71 %
• above 50 years	15	16.13 %
Education		
• Diploma	23	27.05 %
• Undergraduate	52	61.18 %
• Master degree	10	11.76 %
Tenure		
• < 5 years	5	5.37 %
• > 5 years	88	94.63 %
Position		
• Department Manager	61	65.60 %
• Division Manager	10	10.75 %
• Branch Manager	22	23.65 %

Seventy-five (80.65%) respondents were male and eighteen respondents (19.35%) were female. From a total of 93 respondents, 43.01% or 40 respondents aged between 31 to 40 years. 88 respondents (94.63%) have job tenure more than 5 years. 52 respondents (61.18%) hold bachelor degree and the rest of respondents hold diploma and master degree.

Table 2 reports the descriptive statistics for variables being studied. From tabel 2 it can be seen that the mean value for managerial performance is 5.27 with a minimum value of 3.44 and maximum value of 7. Based on this data it can be implied that respondents assessed that their performance above average performance of other managers.

Table 2 Descriptive Statistics of Variables

	N	Min	Max	Mean	Std.Deviation
SMA Information use	93	2.80	6.20	4.8484	.68217
Information Literacy	93	4.40	6.53	5.6816	.49370
Managerial Performance	93	3.44	7.00	5.2724	.72539

SMA information use has a mean value of 4.85 with standard deviation 0.68, the maximum value 6.20 and minimum value 2.80. This shows that the level of SMA information usage is moderate. Respondents of this study consider that they have a slightly high information literacy skills. Information literacy has a mean value of 5.68, minimum value of 4.40 and maximum value of 6.53.

4.2 Validity, Reliability and Correlation among Variables

Before testing the hypotheses, test of reliability and validity are performed. Validity testing conducted by find the correlation between the score of items questionnaire with a total score construct or variable (Ghozali, 2005). Based on the results of validity testing on information literacy, SMA information use, and managerial performance, coefficient values obtained for all items are greater than 0.3. Thus, each item in the statement of each variable (information literacy, SMA information use and managerial performance) is valid. The reliability test done by looking at the value of Cronbach Alpha. Reliability test results indicate that all variables are reliable with Cronbach Alpha values greater than 0.7 (Nunnaly, 1967).

The results of the correlation test have provided a preliminary finding on a significant positive relationship between information literacy and managerial performance ($r = .423$), SMA information use and managerial performance ($r = .286$).

Table 3 Results of Reliability and Pearson Correlation Coefficient

Variables	Cronbach Alfa	1	2	3
Information Literacy	.862	1		
SMA Information Use	.825	.189(*)	1	
Managerial Performance	.898	.423(**)	.286(**)	1

* Correlation is significant at the 0.1 level and ** correlation is significant at the 0.01 level (2-tailed)

3.2 Hypotheses Testing

The first objective of this study is to examine the direct effect of information literacy on managerial performance. Table 2 shows the results of direct relationship between information literacy and managerial performance. The finding indicate that there is a strong positive relationship between information literacy and managerial performance ($\beta = .613$; $t\text{-value} = 4.377$, $p = .000$). Hence, H_1 is accepted.

The second objective of this study was to examine the direct effect of information literacy on SMA information use. The finding (see table 2) indicate that there is a strong positive relationship between information literacy and SMA information use ($\beta = .283$; $t\text{-value} = 1.996$, $p = .049$). Thus, H_2 is accepted.

Table 4 Regression Results

		Coefficient	t-value	Sig	Support
H1	Information Literacy – Managerial Performance	.613	4.377	.000	Yes
H2	Information Literacy – SMA Information Use	.283	1.996	.049	Yes
H3	SMA Information Use – Managerial Performance	.309	2.899	.005	Yes

Based on the results of the regression analysis that are presented in Table 2 it can be concluded that the SMA information use has a positive influence on managerial performance ($\beta = .309$; $t\text{-value} = 2.899$, $p = .005$). Thus, H_3 is accepted.

The fourth objective of this study was to examine the mediating effects of SMA information use on the relationship between information literacy and managerial performance. As discussed in the previous section to prove the existence of mediating variable then four-step test was conducted. Table 5 summarizes the results of statistical testing that have been done.

Table 5 Regression Results of Testing Mediating Effect

		Coefficient	t-value	Sig	Support
Step 1	Information Literacy (IV) – Managerial Performance (DV)	.613	4.377	.000	Yes
Step 2	Information Literacy (IV) – SMA Information Use (DV)	.283	1.996	.049	Yes
Step 3	SMA Information Use (IV) – Managerial Performance (DV)	.309	2.899	.005	Yes
Step 4	Information Literacy (IV), SMA Information Use (MV) – Managerial Performance (DV)	.548 (IV) .228 (MV)	2.251 3.918	.027 .000	Yes, (β Information literacy reduced from .613 to .548)

In the first step, information literacy is shown to have a significant influence on managerial performance ($\beta = .613$, $p = .000$), thus the first criteria for testing the mediating variables have been met. In the second step, information literacy is shown to have a significant influence on SMA information use ($\beta = .283$, $p = 0.049$), thus the second criterion to test the mediating variables have been met. In the third step SMA information use shown to have a significant influence on managerial performance with $p = 0.005$, thus, the third criterion for testing the mediating variables have been met. In last step, the value of β which show the effect of information literacy on managerial performance after inclusion of SMA information use became smaller than the previous value of β (.548 < 0.613). Based on the results of the regression analysis it is shown that SMA information use met the criteria as a mediating

variable. Therefore, it can be concluded that SMA information use mediates the relationship between information literacy and managerial performance. Thus, H₄ is accepted.

5. Discussion and Conclusions

This study aims to enhance the knowledge of information literacy and SMA information use. The significant positive relationship between information literacy and managerial performance explained that an increase in information literacy skill was related to an increase in the level of managerial performance.

The significant positive relationship between information literacy and SMA information use explained that an increase in information literacy skill was related to an increase in SMA information usage. This means that with the information literacy skills possessed, managers can determine what information they need and where do they get that information. SMA consists of analysis and information that is external to the company, focusing on the future and can be financial and non financial. Since managers have good skills in information literacy so managers can define and find sources of the information they need even if that information is outside the company. Information literacy skills lead managers to find and use the information they need easily.

Results of the regression analysis found that the SMA information use has a significant positive relationship with managerial performance. It has been expected that the more usage of SMA information would result in better managerial performance than any manager has used less SMA information in conducting managerial functions.

By having the information generated by the SMA, managers will be able to evaluate the company's competitive position in the market, as SMA provide cost and pricing data, market share and sales volumes and cash flows and the availability of company resources compared to competitors (Sari, Ainuddin and Abdullah, 2006). In addition, SMA information help managers in integrating strategic product costing and performance measurement, analysis product on the market and analyze the competitiveness of firms (Foster, 2003). Furthermore SMA provide useful information for planning and controlling in the management process. Therefore, SMA information lead manager to work effectively and efficiently resulting in increased managerial performance.

The results of this study provide evidence that SMA information use has a role as mediating variable. This cause the relationship between information literacy and managerial performance be an indirect relationship. The results of this study indicate that although SMA information is very useful for strategic decisions but not all of information is available in the company. Only manager who have high information literacy skills able to identify, locate, and utilize SMA information effectively so that managerial performance will be improved.

In conclusion, this study contributes to academia and practitioners. This study contributes to academia by adding the evident of the existance of a direct relationship between information literacy and SMA information and between SMA

information and managerial performance. The result of this study also add our insight about the mediating role played by SMA information variable. On the other hand, interms of practical aspect, the study provided important information for organization. Information literacy has a significant relationship with managerial performance. Therefore improving the information literacy skills of managers is essential. The attention must be given to developing information infrastructure and management information system (Oman, 2001).

Although the study has reached its objectives, the findings of the study need to be interpreted with the following study limitations in mind. First, the study was not supported by the results of previous studies because the researchers did not find any previous studies that address the issue of information literacy and its relationship to SMA information and managerial performance. Second, all respondents in this study are from one particular bank in Indonesia. Therefore, generalization of this study is limited. Future study can replicate this study to other industry to achieve a better generalization of the results. Finally, this study only focus to one of psychological factors (information literacy). Future study can add other variables related to psychological factors that may be able to influence managerial performance such as tolerance of ambiguity (Chong, 1998) and Self Efficacy (Bandura, 1988).

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