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The Effects of a Management Accounting System on Task Uncertainty and Managerial Performance in Cooperative

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The aim of this study was to investigate the effect of a management accounting system on task uncertainty and managerial performance. Data from 58 cooperative managers were used to test management accounting systems, task uncertainty and managerial performance. Data were analysed with SPSS and Smartpls. SPSS is used for non response bias and descriptive statistics. SMartPLS is used for hypothesis testing. The research found that management accounting systems have a positive effect on managerial performance and management accounting systems have a negative effect on task uncertainty.

Key words: *Management accounting system, task uncertainty, Managerial Performance.*

Introduction

Decision making is one of many management tasks (Cosgrave, 1996) and it is at the heart of management practice (Baba and HakemZadeh, 2012). Furthermore Pedarpur et al. (2013) cite Peter Drucker's statement that the future of management depends on the process and the understanding of decision making because it is related to manager's tasks and organisational effectiveness (Abdalla, 1983). In other words, manager decision making represents the required work (Borman and Brush, 1993) and provides accounting information in certain organisations to support decision making (Siyanbola, 2012).

Performance problems are common in companies and should be addressed by economists (Kahn and Shere, 1990) to determine the performance (Kathuria, 2000). One of the performance standards is the manager (managerial performance) which is measures how it

works (Lathi, 1978). Managerial performance is a comprehensive way to investigate the consequence of behavioural influences (Staw and Barsade, 1993). Besides, managerial performance is a profitability and economic performance indicator so there many studies that focus on managerial performance in economic social contexts and it also provides accounting information (Arcelus et al., 2014).

A management accounting system (MAS) is a part of a accounting information system that provides services for managers and other internal users (Alikhani et al., 2013). Traditionally, MAS is considered as an important matter in the management process (Ajibolade et al., 2010) and it results in information (Ajibolade, 2013). MAS plays a significant role in providing information for decision making (Chong and Eggleton, 2003, AL-Hazmi, 2010). Chong and Eggleton (2003) added that the use of MAS improves managerial quality. For this reason, many researchers are interested to study MAS, focusing on investigating the relationship between MAS with managerial performance.

However, MAS is not a new issue. Since there are contradictory results based on previous studies, the researcher wants to verify and re-analyse the relationship between MAS and managerial performance.

Based on previous studies, the role of MAS in managerial performance still shows different results. Those differences can be caused by the type of organisation or uncertainty matter that existed within the organisation. Therefore, this current study uses another external object of a manufacture company and hospital, a cooperative.

In Indonesia, cooperatives have been known since the colonial period as an economical company used by the people where its role is only limited for providing fund supports for its members (Subandi, 2008). Cooperatives are not just developed, as stated by Hatta (1987) cooperatives are based on a kinship to create a well-being for people in the future. Even in the difficult situations, cooperatives can still survive and be developed (Birchall and Ketilson, 2009).

Cooperatives are economical alternatives and are worthy to be developed from powerlessness (Bello and Zaria, 2005). Cooperatives are organisations that make a change and are created to survive in the massive economic structural change which comes from globalisation and agricultural industrialisation (Royer, 1999). Cooperatives have long been represented as an economical organisation designed to provide services for their members and not to give profits to investors (Valentinov, 2004).

Review of Related Literature

Contingency Theory

Contingency theory is one approach, besides using organisation design, used for studying organisations (Van de Ven et al., 2013). Moreover, contingency theory dominates scientific research toward: organisational attitudes, design, performance, planning, and management strategy (Van de Ven and Drazin, 1984). Contingency theory is a new approach implemented situationally (Luthans, 1973).

Contingency theory has an ability to predict a performance based on "appropriateness" from company strategy, information technology and environmental uncertainty (Buttermann et al., 2008). Moreover, contingency theory is based on the suitability between particular components from organisational managerial and contingency which will improve organisational performance (Çakır, 2012). Therefore, Ajibolade (2013) stated that organisation theory adopts contingency theory as the basic analysis in the organisation.

Management Accounting System (MAS)

Information is always an important element within human activities (Tokic et al., 2011). Information necessity for both individuals and organisations will improve in line with the development of technology (Alikhani et al., 2013). Accounting is apart of information systems (Tokic et al., 2011). Further, Tokic et al. (2011) stated that a accounting information system is an integrated system that links environment and human potential and technical elements into a particular unit which then is processed. The accounting information system of an organisation has two systems: (1) financial accounting system and (2) management accounting system (Alikhani et al., 2013).

MAS gives internal information related to decision making for management units (Watts et al., 2014). Further, Watts et al. (2014) added that tactical management position depends on MAS. In addition, MAS has an ability to determine a change within organisation. MAS is a formal sub-system of information within organisations that ensures utility as a tool for managers (Moliner and Ruiz, 2004). MAS which is a combination from multidimensional planning and control sub-system (Williams and Seaman, 2002) gives the required information to the manager to make decisions (Jerman et al., 2012). According to Zimmerman (2001) in his study, MAS of a company, in facilitating decision making, aims to provide the relevant information on time. Additionally, MAS can be used to motivate employees in achieving organisational goals. Therefore, MAS gives information for management and other internal users (Alikhani et al., 2013).

Task Uncertainty

Task Uncertainty is defined as the imperfection of the relationship between information and environment (Palmer, 2005). Thus, uncertainty is the central concept within an organisation (Milliken, 1987). In organisations, uncertainty implicates organisational structure, strategy, and process (Regan, 2012). Based on uncertainty theory, it has three types: (1) task, (2) environment, and (3) interdependence (Daft and Lengel, 1986). In summary, Lu (2012) defines uncertainty task as a level of work that is difficult and complex to do and to understand. In his study, Perrow (1967) suggested two basic dimensions of task uncertainty: task variability and task analysability.

Managerial Performance

Managerial performance has been an interesting topic of research since Fayor published his work in 1916 (Borman and Brush, 1993). It is because the managerial performance is able to influence cultural organisation and productivity (Young et al., 2000), and consequence of attitude (Staw and Barsade, 1993). Similar to a study conducted by Emmanuel et al. (2007), it stated that theoretical literature in controlling management improves managerial performance through managerial motivation. This statement is also emphasised by Mia (1989) with her argument that participation has the potential to improve managerial performance.

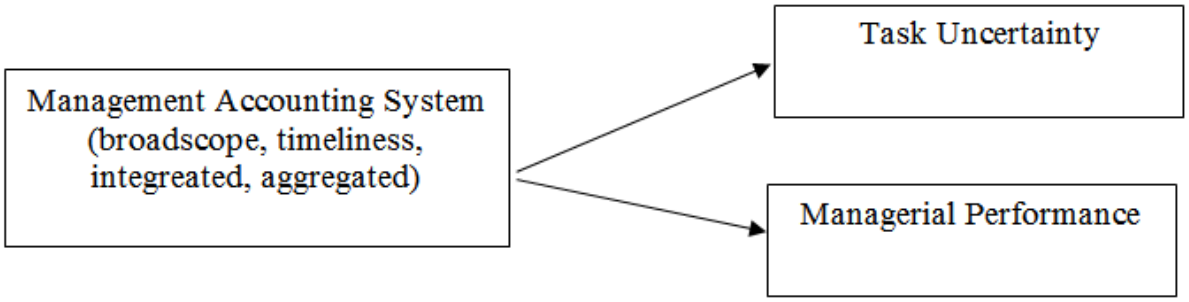
Managerial performance has four necessary domains: (1) knowledge, (2) leadership, (3) communication, and (4) interpersonal behaviours (Young et al., 2000). The three domains identified as parts of managerial performance are: leadership, communication, and interpersonal behaviours (Borman and Brush, 1993). In addition, according to Saari et al. (1988) this behaviour seems to be important for managerial performance and its successful achievement.

Mahoney et al. (1965) conducted a study that contributes to improving the understanding of managerial performance character. Two dimensions that are relevant to managerial performance are managerial functions and managerial competence. These two dimensions provide a framework which analyses managerial performance (Mahoney et al., 1965). Therefore Mahoney et al. (1965) uses the dimension of managerial functions in their study and this instrument is used by many researchers.

The Hypothesis Development

This study has a theoretical model that is displayed in figure 1.

Figure 1. Theoritical Model



This model shows the interaction between MAS and task uncertainty in developing the relation of MAS and managerial performance.

The Relationship between Management Accounting System (MAS) With Managerial Performance

MAS is a formal system designed to provide information to managers (Bouwens and Abernethy, 2000). It is broadly said that MAS aims to give information to plan and control business for management (Wessels and Vermaas, 1998). MAS is a phenomenon among accounting academicians and this increases a willingness to investigate MAS (Seaman and Williams, 2006).

A study conducted by Chia (1995) concluded that MAS contributes to managerial performance. Chang et al. (2003) also found that performance can be improved by MAS. By using multiple regression, Chong (1998) found that interaction of MAS with tolerance for ambiguity influences managerial performance. From this finding, an alternative hypothesis can be stated (H1): MAS gives a positive impact to managerial performance.

The Relationship between MAS with Task Uncertainty

MAS is a formal system designed to give information to manager (Bouwens and Abernethy, 2000). It can be widely said that MAS has proposed to support information to plan and to control business for management (C.B. and H.F., 1998). MAS has motivated the researchers to conduct further studies related to this topic (Seaman and Williams, 2006).

A study conducted by Chia (1995) resulted that MAS contributes to managerial performance. Chang et al. (2003) also found that performance can be improved by MAS. By using multiple regression, Chong (1998) found that interaction of MAS with tolerance for ambiguity influences managerial performance.

Otley (1980) described that a contingency approach for management accounting is based on the premise that there is no appropriate universal accounting system that is used for all organisations in the same condition. On the other hand, management accounting will depend on a particular condition where an organisation is settled. Thus, the existing contingency theory should identify a specific aspect of the accounting system related to the particular condition.

A study by Chong (1996) tried to review the interactive impacts of MAS toward managerial performance. In his study, Chong (1996) included the contingency variable, being task uncertainty, as a moderating variable. The findings gained by Chong (1996) showed that a high situation of task uncertainty with the use of broad scope MAS will improve managerial performance. A study by Chong and Eggleton (2001) tested the three directions of interaction among locus of control, task uncertainty, and MAS which influences managerial performance. The result of the study from Chong and Eggleton (2001) shows three transaction directions: locus of control, task uncertainty, and MAS affects the performance. This means the MAS gives an impact on managerial performance.

By using the questionnaire survey from 131 senior managers of companies in Australia, Vincent K.Chong (2004) analysed his study to test the job relevant information, between the management accounting system and task uncertainty toward managerial performance. The result of the study found that there are three direction-interaction of job relevant information, management accounting system and task uncertainty influence managerial performance. On the other side, a high situation of task uncertainty in the use of information of MAS and job relevant information to make decisions influences the improvement of managerial performance.

In some studies, task uncertainty plays a role in how a manager makes a decision by using information. When the level of uncertainty task is low, a manager need less information of MAS to make decisions (Chong, 2004). The condition of contingency through task uncertainty influences the behaviour of managers in decision making. Decision-making is an important thing for a manager. Moreover, some studies state that task uncertainty is the main strategy in making decisions (Grandori, 1984) and gives effective feedback (Geer, 2009). In addition, task elements controlled by employees also depends on the level of uncertainty task.

It is task uncertainty which was a focus in reviewing the suitability of contingency variables in the study by Chang et al. (2003). In this study, uncertainty task as the moderating variable interacted with accounting information system characteristics to identify its relationship with accounting information system performance.

Task uncertainty is also a moderating variable in the study by Chong (2004). This moderating variable is interacted with MAS and relevant job information. This is founded by Chong (2004). It is shown that a high uncertainty task using MAS and relevant job information will improve the managerial performance. By reviewing the theories and the results of previous studies, an alternative hypothesis is stated (H2): Management accounting system affects task uncertainty.

Research Methodology

Data and Source of the Data

The data used in this present study is primary data. This primary data is collected from perspectives or managers' opinions taken individually to investigate the information related to management accounting system, task uncertainty and their performance. The source of the data used in this study is all managers in Ponorogo, East Java, Indonesia which is popularly known as a Reyog town.

Population and Sample

There are 760 active cooperatives in Ponorogo regency (Indakop, 2015) but not all of them have managers. There are only 115 cooperatives which have managers (Indakop, 2015). All managers are identified as analysis unit based on their functional roles in cooperative organisation structure. The respondents of the study are addressed to cooperative managers in Ponorogo Regency – East Java. The sample of the study is taken by using the Rao (1996) formula. Non probability sample is used and finally there are 54 managers taken as the respondents. Data that can be analysed from 58 respondents from 115 questionnaires were distributed.

The Definition of Operational and Variable Measurement

Management accounting system (MAS)

MAS in this study is defined as information used by managers to make decisions Chong (1996). This current study does not use aggregated dimension because according to Hammad et al. (2013), it is less beneficial for evaluating managerial performance since there is a huge amount of information. Therefore, it has less function in decision making and it obstructs managerial performance. Based on this reason, this study utilises three dimensions: Broad scope, timeliness and integration. Those dimensions are measured through a questionnaire instrument with a likert scale 1-7 developed by Chenhall and Morris (1986). In this study: broad scope is a wide characteristic scope from MAS involving focus dimension, time horizon and quantification (Gordon and Narayanan, 1984). Timeless is the punctuality determined by information providers based on the requirement systematically from those

gathered information (Chenhall and Morris, 1986). Meanwhile, integrated is a degree of measurement that facilitates the information system combination from various sources and areas to support business decisions (Nelson et al., 2005).

Task Uncertainty

Task uncertainty is defined as the difference of required information with processed information (Chong, 1996). Task uncertainty in this study is measured by the instruments developed by Chong (1996). This instrument has been developed by Chong (2004) from Withey et al. (1983). This instrument of task uncertainty is measured by using Likert scale 1-7.

Managerial Performance

Managerial performance is one's quality and quantity of their working result during his or her performance according to the responsibility given. Managerial performance is measured by using instrument Mahoney et al. (1965) which is known as 9 items. Each manager is asked to measure his or her self managerial performance with Likert scale 1-7.

Technique of Data Analysis

The analysis technique used is a non-response bias test and descriptive statistic with the SPSS program. Testing the hypothesis is analyzed by the SmartPLS program. The data is analysed with the outer model and the inner model. The outer model is used to test the construct validity and instrument reliability (Jogiyanto, 2011). The outer model knows the loading factor value and AVE value. Provisions for Loading Factor > 0.70 and AVE> 0.50 as a condition convergent validity (Abdillah and Jogiyanto, 2015). Inner model is used to analyse hypothesis that are accepted or rejected. The hyphotesis is accepted if t-statistic > 1,96 and p-value < 0,05 and the hyphotesis is rejected if t-statistic < 1,96 and p-value > 0,05 (Hair et al., 2010)

Research Result

Non-Response Bias Test and Descriptive Statistic

115 questionnaires are distributed and 65 of them are taken. Yet, there are only 58 questionnaires that can be analysed. The data collected can then be displayed in a table: non-response bias and descriptive statistic are as follows:

Table 1: Non-response bias test

Construct	Mean Early (n = 53)	Mean final (n = 5)	t-stat	p-value
Management accounting system	79,4906	75,6000	0,978	0,332
Task uncertainty	44,1509	49,6000	-1,851	0,069
Managerial performance	54,0755	57,0000	-0,849	0,400

Table 2: Descriptive statistics

Variable	N	Theoretical range	Theoretical mean	actual range	Mean actual	Standard deviation
Management accounting system	58	14-98	56	64-96	79,1552	8,49727
Task uncertainty	58	9-63	36	27-57	44,6207	6,42590
Managerial performance	58	9-63	36	35-63	54,3276	7,34701

Table 1 results show that the p-value of each construct has a value of > 5%. This means that there are no significant differences between the two groups that provide early responses and final responses. So, there is no problem of response bias. Then the data can be analysed.

Table 2 results show that all constructs have an actual mean higher than the theoretical mean. This mean that MAS used in many cooperatives for decision making and task uncertainty is high and the manager has a high performance.

Evolution Model

Vinzi et al. (2010) recommends that PLS use two approachs, namely: model evalution (outer model) and structural model (inner model). Outer model multidimention MAS produces values that can be table as follow:

Table 3: Composite Reliability and AVE MAS variable

	Composite Reliability	AVE
Aggregated	0,840	0,637
Broadscope	0,871	0,427
Integreated	0,870	0,698
Man.Accounting System	0,903	0,408
timeliness	0,832	0,554

Table 3 results show that AVE < 0,5, then its need to issue items factor loading < 0,70. Three items of broadscope dimension and 1 item of timeliness dimension were removed in the

analysis. Then the data is analysed with smartPLS obtained Composite Reliability and AVE and path coeficient, as follows:

Table 4: Composite Reliability and AVE MAS variable after issued 4 item

	Composite Reliability	AVE
Aggregated	0,840	0,637
Broadscope	1,000	1,000
Integreated	0,870	0,690
Man.Accounting System	0,909	0,502
timeliness	0,824	0,610

Table 5: Path coeficient Management Accounting System (MAS)

	Original sample	Sample mean	Standart deviation	t-stat	p-value
MAS →*aggregated*	0,873	0,876	0,035	24,843	0,000
MAS → *broadscope*	0,576	0,562	0,103	5,492	0,000
MAS →*integreated*	0,942	0,943	0,012	80,052	0,000
MAS →*timeliness*	0,878	0,881	0,026	33,483	0,000

Table 4 result show that composite reliability > 0,70 and AVE > 0,50. Thus the MAS construct fulfills convergent validity. Table 5 resulst show that t-statisctic > 1,96 and p-value < 0,05. This means the construct first order has a significant effect on the second order MAS construct. So, broadscope, timeliness, integreated and aggregated is shaper in MAS construct.

Outer Model Research

SmartPLS produces table Composite Reliability and AVE and outer model figure as follows:

Table 6: Composite Reliability and AVE

	Composite Reliability	AVE
Aggregated	0,840	0,637
Broadscope	1,000	1,000
Integreated	0,870	0,690
Man.Accounting System	0,909	0,502
Managerial performance	0,928	0,591
Task uncertainty	0,496	0,228
timeliness	0,824	0,610

Figure 1. outer model

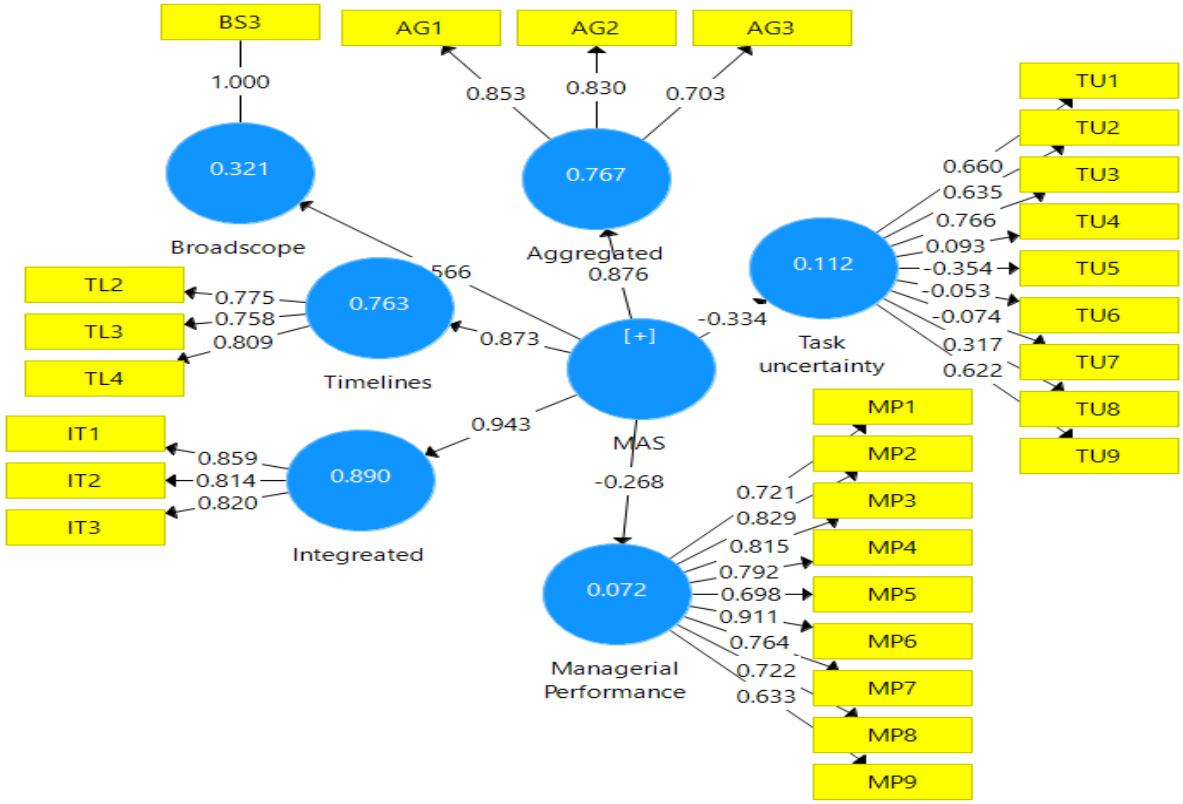


Table 6 results show that task uncertainty has Composite Reliability value < 0,70 and AVE value < 0,50. So, it's necessary to drop some items that have factor loading < 0,70. On outer model then deleted 7 items task uncertainty dan 1 item managerial performance. Then, the data is analysed. The obtained results are in table 7 as follows:

Table 7: Composite Reliability and AVE MAS, task uncertainty and managerial performance

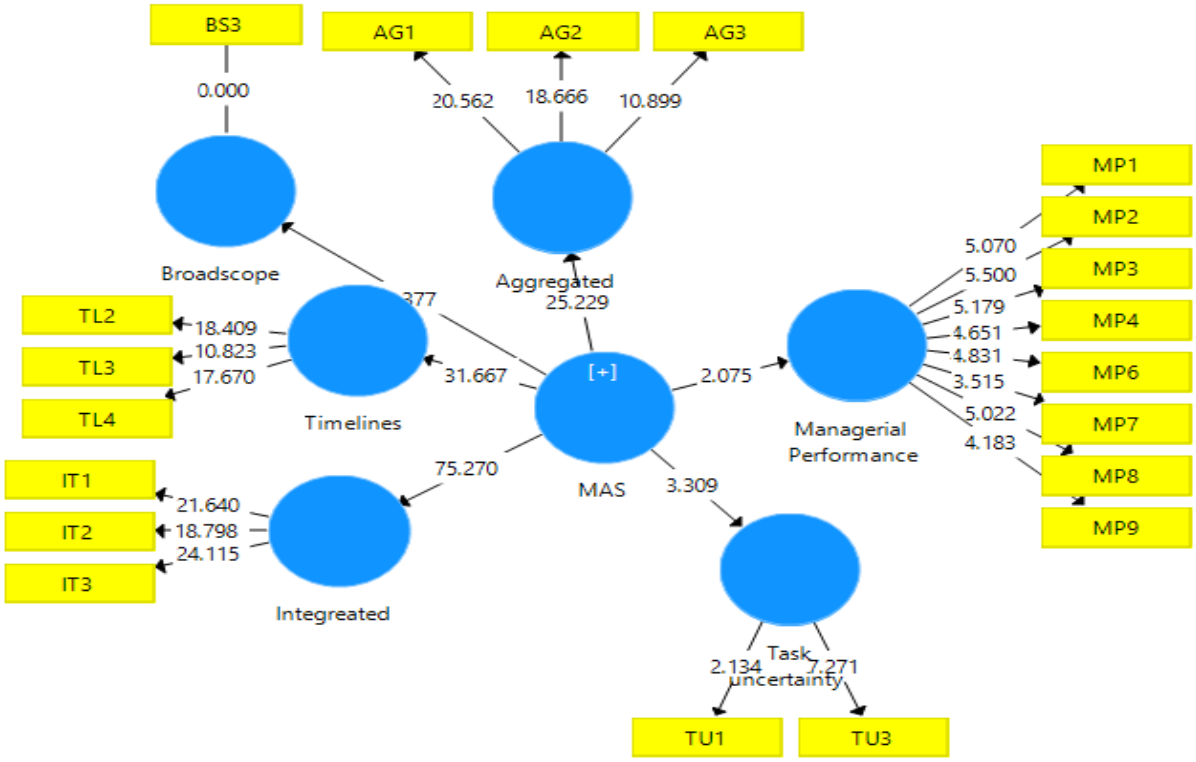
	Composite Reliability	AVE
Aggregated	0,840	0,637
Broadscope	1,000	1,000
Integreated	0,870	0,690
Man.Accounting System	0,909	0,502
Managerial performance	0,928	0,591
Task uncertainty	0,721	0,577
timeliness	0,824	0,610

Table 8 results show all item are valid because composite reliability > 0,70 and AVE > 0,50. Thus all indicators are valid. So, the data can be further analysed using bootstrapping. The result are as follows:

Table 8: Path coeficient MAS, task uncertainty and managerial performance

	Original sample	Sample mean	Standart deviation	t-stat	p-value
MAS → Managerial Performance	0,266	0,313	0,128	2,075	0,039
MAS → Task Uncertainty	-0,364	-0,375	0,110	3,309	0,001

Figure 2. inner model



Hypotheses Test

The results seen in table 8 show that MAS positive influence on managerial performance. This is indicated by t-statistic > 1,96, p-value < 0,5 and original sample 0,226. The findings mean that an increase in MAS usage will improve managerial performance. Conversely a decrease in the use of MAS will reduce managerial performance.

In the same table it also seen that MAS has a negative effect on task uncertainty. This is indicated by statistic t-statistic 3,309, p-value 0,001 and original sample -0,364. T-statistic value > 1,96 , p-value < 0,05 and original sample with a negative notation. This means the hypotheses is accepted. Increased use of MAS will reduce task uncertainty and decreasing the use of MAS will increase task uncertainty.

Research findings indicate that MAS has a positive effect on managerial performance. This means that the dimensions are owned by MAS (broadscope, timeliness, integreated and aggregated) affecting managerial performance. The results of this study support the findings of research conducted by Agbejule (2005), Agbejule (2005), Agbejule (2011), Ajibolade et al. (2010), Bhimani (2012) , and Ajibolade (2013). All of these researchs find that MAS affect the performance, managerial performance and organisational performance. Findings that show that MAS has a negative effect on task uncertainty were by Chang et al. (2003), Chong and Chong (2003), dan Kim and Burton (2002).

Conclusion, Implication and Limitation

This study provides empirical evidence regarding the effect of MAS on task uncertainty and managerial performance. The results showed that: (1) MAS has a positive effect on managerial performance, and (2) MAS has a negative effect on task uncertainty.

This research has implications on MAS on managerial performance and task uncertainty. Thus MAS indirectly influences the ups and downs of managerial performance. MAS also helps managers in task uncertainty.

The limitations of this study are: (1) The use of managers as objects of sampling in this study is less representative because in fact managers are not included in the organisational structure hierarchy in cooperatives, (2) The instrument used in this research is the respondents' perceptions and it may lead to a problem in cases where there is a difference between the perception and the factual condition, and (3) It was assumed that managers already understand MAS, task uncertainty and the managerial performance.

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