

The role of management accounting system and organizational culture in mediating the relationship between mutual dependency and environmental uncertainty

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ABSTRACT

This study aimed to develop a conceptual model of the mediating role of management accounting system (Broadscope) and organizational culture on the influence of mutual dependency and environmental uncertainty on managerial performance. The sample was 126 managers of Swamitra Palm Oil Plantation in Riau. The entire population was sampled. The data were processed using Structural Equation Modeling Partial Least Square (SEM PLS). The findings in this study are mutual dependency and environmental uncertainty have a positive influence on managerial performance, organizational culture mediates the influence of environmental uncertainty on managerial performance, meanwhile management accounting system (Broadscope) does not mediate the influence of mutual dependency on managerial performance.

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1. Introduction

Armstrong (2009:235) reveals “performance management can be defined as a systematic process for improving organizational performance by developing the performance of individuals and teams.” Performance is influenced by many factors such as commitment, culture, organizational citizenship behavior and innovative work behavior (Fitrio et al., 2020). Several studies state that mutual dependency affects managerial performance (Utami, 2017; Nurpriandyni & Suwanti, 2011) but there are several studies that found that mutual dependency has no influence on managerial performance (Hastuti, 2010). The inconsistency of research results on the influence of mutual dependency on managerial performance made researchers interested in conducting study and trying to find solutions to the research gaps. Researchers also found studies that state that environmental uncertainty has an influence on managerial performance (Jayanti & Widodo, 2010; Ernawati, 2005), but several studies also stated that environmental uncertainty had no influence on managerial performance (Sari, 2014; Febrianti & Fitri, 2019). To find a solution to the research gaps, the researchers conducted an empirical study and found that the management accounting system has an influence on managerial performance (Chenhall & Morris 1986; Pomberg & Pourjalali, 2009). Other studies also mention that organizational culture has an influence on managerial performance (Herlina, et al, 2017; Arianty, 2015; Doloksaribu, 2010). The researchers used the management accounting system and organizational culture as mediating variables which the researchers suspected has the potential to be mediating variables to improve managerial performance. The logic of thinking that researchers build is high mutual dependency and uncertainty—if accompanied by a good accounting system and a culture that supports organizational goals can potentially improve managerial performance.

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This study emphasized the importance of management accounting systems and organizational culture as mediating variables in improving managerial performance. In the end, this study aimed to develop a resource-based view, where organizational resources are scarce, difficult to imitate and cannot be replaced—which by managing internal and external factors accompanied by a supportive information system and a good culture can increase competitive advantage.

2. Literature Review

2.1 Resource-Based View

Barney (2001) provides a formal description from a business level resource perspective. Organizational resources that are valuable, rare, difficult to imitate and—cannot be replaced can generate strategic competitive advantages. The resources in question are anything that can be considered a company's strengths and weaknesses. More formally, company resources are tangible and intangible assets that are tied semi-permanently to the company, for example, brand names, in-house knowledge, technology, skilled labor, trade contracts, machinery, efficient procedures, capital and others.

2.2 Performance

Mangkunegara (2009: 76), defines performance as the result of work in quality and quantity achieved by an employee in carrying out their duties in accordance with the responsibilities given to them. Daft (2010:8), states that performance is the ability of an organization to meet organizational goals through the efficient and effective use of resources. Bangun (2012:231), states that performance is a result of work achieved by a person based on job requirements.

Gibson (2004), states that there are three factors that influence performance, namely 1) Individual factors: abilities, skills, family background, work experience, social level and a person's demographics; 2) Psychological factors: perception, job stress, roles, attitudes, personality, motivation and job satisfaction and 3) Organizational factors: organizational structure, job design, leadership and reward system. Handoko (2016: 98), states that there are several factors that influence performance, namely 1) Skills or experience, 2) education, 3) age, 4) supporting facilities, 5) enthusiasm and passion for work and 6) motivation.

Mathis et al., (2015:153), state that there are five indicators in measuring performance, namely 1) Quantity of Output, 2) Quality of Output, 3) Timelines of Output, 4) Presence at work, 5) Efficiency of Work Completed. Mahoney & Dectop (1986), state several performance measurement indicators, namely 1) planning performance, 2) Investigation performance, 3) coordinating performance, 4) evaluation performance, 5) supervisory performance, 6) staff management performance, 7) negotiation performance and 8) representative performance

2.3 Mutual Dependency

Scout (2000), defines mutual dependency as the degree to which the elements of work performed are related to each other so that changes in one element will affect other elements. Individuals and groups can depend on one another for information, assistance, or coordinated action. Such dependent relationships can help the development of the company, but can also lead to conflict between individuals and the group itself (Gibson, 2004: 321). Organizational mutual dependency tends to affect planning and control activities for subunits that have a high degree of mutual dependency, which can complicate the task of coordination. Thus, in a situation of high mutual dependency, managers will need a management accounting system that can provide information with integrity (Muslichah, 2004). Robbins (2010: 256), states that mutual dependency can be measured using indicators, namely (1) pooled mutual dependency, (2) sequential mutual dependency and (3) reciprocal mutual dependency. Meanwhile, Thompson (2017:128), states several forms of mutual dependency, namely 1) Sequential mutual dependency, 2) Pooled Mutual dependency and 3) Reciprocal mutual dependency.

2.4 Environmental Uncertainty

Desmiyawati (2004:72), argues that environmental uncertainty is a condition where the organization or its leaders do not have accurate and sufficient information about environmental conditions, so that it will cause difficulties in estimating environmental changes that will occur, which in turn can lead the organization to take action that has a high risk of failure. Meanwhile, Miliken (1987), suggests that environmental uncertainty is an external condition as a person's sense of inability to predict accurately the company's operations.

Robbins (2010:263), states that the main source of uncertainty comes from the environment, among others (1) competitors, (2) consumers, (3) suppliers, (4) regulators and (5) required technology. Hunger & Wheleen (2013: 364), state that there are four types of business environments starting from relatively closed entities to relatively open entities, the four business entities are 1) Placid Randomized Environment, 2) Placid Cluster Environment, 3) Disturbed Reactive Environment and 4) Turbulent Environment. The four levels of business entities also describe the development of the complexity of business transactions and the internal and external interactions of business actors with the business environment.

Duncan (1972: 136), states that environmental uncertainty is an individual's limitation in assessing the probability of failing or succeeding in the decisions made. When the company faces a high level of environmental uncertainty, the company will need the availability of information with broad scope, timeliness, aggregation—and integration characteristics to produce more accurate decisions. Duncan (1972:143), further states that there are several indicators to measure environmental uncertainty, namely 1) the ability of managers to understand external conditions, 2) the probability of failure and 3) the probability of success.

2.5 Management Accounting System (Broadscope)

Otley (1980: 186), reveals that the contingency approach to management accounting is based on the premise that there is no universal management accounting system that is always appropriate for use throughout the organization, except for certain contexts or conditions only. Atkinson (2006:26), defines that “the management accounting system is an information system to collect the financial and operational data, processing, and report for users.”

Hansen and Mowen (2007:18), state that basically the management accounting system has three general objectives, namely providing information in 1) calculating the cost of services, products, 2) planning, controlling, evaluating and continuously improving and 3) decision making. Hall (2015:159), argues that the management accounting system is part of an integrated unit in the formal organizational control structure. Conventionally, the design of management accounting systems is limited to historically-oriented internal financial information. However, to increase the role of the management accounting system to assist managers in directing and solving problems has resulted in changes to the management accounting system to incorporate external and non-financial data into future-oriented information. Chenhall and Morris (1986), state that the characteristics of management accounting system information that are useful according to managers' perceptions include broad scope, timeliness, aggregation and integration. Radebaugh & Gray (2006:47), mention that there are at least fourteen factors influencing the company's accounting system, namely 1) the nature of company ownership, 2) business activities, 3) funding sources and 4) capital market, 5) taxation system, 6) existence and importance of the accounting profession, 7) education, 8) accounting research, 9) political system, 10) social climate, 11) rate of economic growth and development, 12) rate of inflation, 13) statutory system—as well as 14) accounting rule (regulation).

2.6 Organizational Culture

Slocum and Hellriegel (2009:168), defines organizational culture—“reflects the shared and learned values, beliefs, and attitudes of its members.” Robbins (2010:653), states that organizational culture is defined as a system of shared meanings held by members that distinguishes the organization from other organizations. This system of shared meaning is a set of key characteristics that organizations value. Romli (2014: 87), states the important characteristics of organizational culture, namely 1) rules of behavior, 2) norms, 3) dominant values, 4) philosophy, 5) regulations and 6) organizational climate. Tika (2014:74), groups the characteristics of organizational culture into strong and weak categorizations. A strong organizational culture is characterized by 1) decreased employee turnover rates, 2) the existence of a high level of agreement among members about what the organization maintains, and 3) the existence of cohesive development, loyalty and organizational commitment. Meanwhile, a weak organizational culture is characterized by 1) the existence of easily formed groups that conflict with each other, 2) the loyalty to the group exceeds the loyalty to the organization and 3) the existence of members of the organization who do not hesitate to sacrifice the interests of the organization for the interests of the group—or even, the interest of their own. Brown (2009), suggests several indicators of organizational culture, namely 1) the implementation of norms, 2) the implementation of values, 3) trust, 4) the implementation of the code of ethics, 5) the implementation of ceremonies, 6) the history of the organization.

2.7 Conceptual Model and Hypothesis

The conceptual model to be tested is presented in the following Fig. 1.

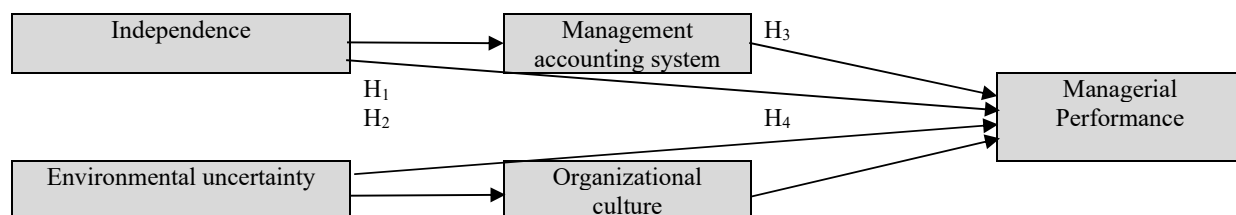


Fig. 1. Research Conceptual Model
Source: Processed data

Based on empirical and theoretical studies, there are still inconsistencies in the results of research on the influence of mutual dependency and environmental uncertainty on managerial performance, the researchers proposed the following hypotheses:

- H1. There is a positive influence of mutual dependency on managerial performance.
- H2. There is a positive influence of environmental uncertainty on managerial performance.
- H3. The management accounting system mediates the influence of mutual dependency on managerial performance.
- H4. Organizational culture mediates the influence of environmental uncertainty on managerial performance.

3. Method

This study is causal associative research—causal associative research is research that aims to determine the relationship between two or more variables. With this research, it will be possible to build a model that serves to explain, predict and control a symptom. A causal relationship is causative in nature, one of the variables (independent) affects other variables (dependent) (Sugiyono, 2013:55). The research subjects were the managers of Swamitra Palm Oil Plantation in Riau. The total population was 126 managers—this entire population was sampled. The managerial performance measurement indicators were developed from Mahoney (1986), namely 1) planning performance, 2) investigative performance, 3) coordinating performance, 4) evaluation performance, 5) supervisory performance, 6) staff management performance, 7) negotiation performance and 8) representative performance. The managerial performance in this study was measured by a 14-statement items questionnaire. The mutual dependency measurement indicators were developed from Robbins (2010), namely 1) pooled mutual dependency, 2) sequential mutual dependency and 3) reciprocal mutual dependency. The mutual dependency in this study was measured by a 9-statement items questionnaire. The environmental uncertainty measurement indicators were developed from Duncan (1972), namely 1) the ability of managers to understand external conditions, 2) the probability of failure and 3) the probability of success. The environmental uncertainty in this study was measured by a 9-statement items questionnaire. The management accounting system measurement indicators were developed from Chenhall & Morris (1986), namely 1) external information, 2) non-financial information and 3) future orientation information. The management accounting system in this study was measured by a 9-statement items questionnaire. The organizational culture measurement indicators were developed from Brown (2009), namely: 1) involvement, 2) consistency, 3) adaptability, 4) mission. The organizational culture in this study was measured by a 12-statement items questionnaire. To test the conceptual model, the structural equation modeling (SEM) Smart PLS 3.3 was used.

4. Results and Discussion

The research respondents were 126 people with 54% having an undergraduate education background (bachelor’s degree)—and the majority of whom have worked for 5-10 years. 61.10% of respondents are 25-35 years old. So, it can be concluded that respondents in this study are young and energetic, educated and experienced—and mature in attitude. Respondents’ responses to managerial performance were good with the highest value indicator being staff management performance and the lowest value indicator being planning performance. Respondents’ responses to mutual dependency were good with the highest value indicator being Reciprocal Mutual Dependency and the lowest value indicator being Pooled Mutual Dependency. Respondents’ responses to environmental uncertainty were good with the highest value indicator being the Manager’s Ability to Understand the External Environment and the lowest value indicator being the Probability of Success. Respondents’ responses to the management accounting system were good with the highest value indicator being non-financial information and the lowest value indicator being future orientation. The respondent's responses to the organizational culture were good with the highest value indicator being mission and the lowest value indicator being involvement. The following is the path of the research model.

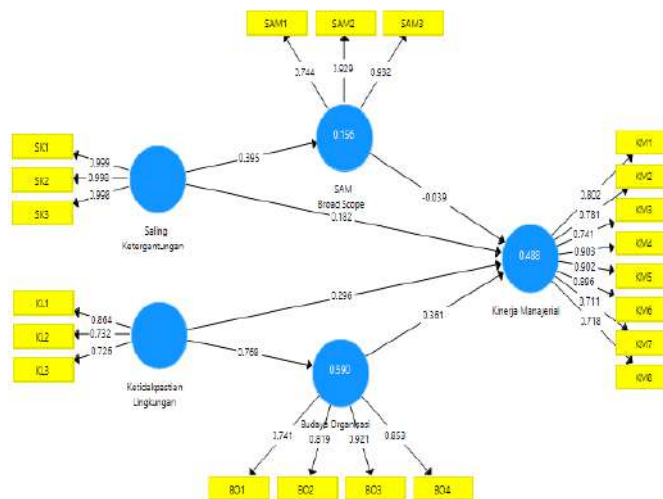


Fig. 2. Research Model Path
Source: SmartPLS 3.3 Programs

4.1 Measurement Model Analysis (Outer Model)

4.1.1 Convergent Validity Test

The results of the convergent validity test of the data in this study are presented in the following Table 1.

Table 1
Factor Loading

Managerial Performance (KM)	KM1- Planning performance	0.802
	KM2- Investigative performance	0.781
	KM3- Coordinating performance	0.741
	KM4- Evaluation performance	0.903
	KM5- Monitoring performance	0.902
	KM6- Staff management performance	0.896
	KM7- Negotiation performance	0.711
	KM8- Representative performance	0.718
Mutual dependency (SK)	SK1- Pooled mutual dependency	0.999
	SK2- Sequential mutual dependency	0.998
	SK3- Reciprocal Mutual dependency	0.998
Environmental Uncertainty (KL)	KL1- The ability of managers to understand external conditions	0.864
	KL2- The probability of failure	0.732
	KL3- The probability of success	0.726
Management Accounting System (SAM)	SAM1- External information	0.744
	SAM2- Non-financial information	0.929
	SAM3- Future orientation information	0.932
Organizational Culture (BO)	BO1- Involvement	0.741
	BO2- Consistency	0.819
	BO3- Adaptability	0.921
	BO4- Mission	0.853

Source: SmartPLS 3.3 Programs

Based on the results of the convergent validity test in Table 1, if the factor loading value is <0.5 then it must be removed from the model and the factor loading value must be re-estimated. By removing several factor loadings that are <0.5 , all indicators are used to continue the analysis to the next stage—it is said to meet convergent validity if all factor loadings are >0.5 (Hair et al., 2017). Because all factor loadings in this study >0.5 , it means that all indicators are valid to form a variable construct.

4.1.2 Discriminant Validity Test

The results of the discriminant validity test of the data in this study are presented in the following Table 2:

Table 2
Discriminant Validity

Indicator	BO	KL	KM	SAM	SK
BO1- Involvement	0.741	0.632	0.496	0.421	0.405
BO2- Consistency	0.819	0.533	0.364	0.452	0.168
BO3- Adaptability	0.921	0.699	0.614	0.617	0.428
BO4- Mission	0.853	0.677	0.614	0.532	0.340
KL1- Understanding external conditions	0.694	0.864	0.490	0.579	0.379
KL2- Probability of failure	0.544	0.732	0.515	0.406	0.422
KL3- Probability of success	0.541	0.726	0.492	0.541	0.400
KM1- Performance planning	0.525	0.611	0.802	0.301	0.343
KM2- Investigation performance	0.494	0.580	0.781	0.288	0.319
KM3- Coordination performance	0.404	0.392	0.741	0.374	0.409
KM4- Performance evaluation	0.572	0.559	0.903	0.374	0.424
KM5- Supervisory performance	0.576	0.577	0.902	0.385	0.424
KM6- Performance of staff arrangements	0.568	0.562	0.896	0.366	0.423
KM7- Performance of negotiations	0.482	0.402	0.711	0.418	0.340
KM8- Representative performance	0.503	0.424	0.718	0.432	0.352
SAM1- External information	0.503	0.570	0.373	0.744	0.401
SAM2- Non-financial information	0.539	0.564	0.392	0.929	0.308
SAM3- Future orientation information	0.548	0.570	0.399	0.932	0.311
SK1- Pooled mutual dependency	0.414	0.516	0.469	0.403	0.999
SK2- Sequential mutual dependency	0.428	0.519	0.471	0.394	0.998
SK3- Reciprocal mutual dependency	0.398	0.503	0.460	0.387	0.998

Source: SmartPLS 3.3 Programs

From Table 2 above, the model has good discriminant validity if each loading indicator value of a latent variable is greater than other correlated variables (Hair et al., 2017). The cross-loading value for each indicator in this study is greater than the other latent variables. This shows that each variable has good discriminant validity.

4.1.3 Construct Reliability Test

Average Variance Extracted (AVE) has a value of >0.5 and Composite Reliability (CR) has a value of >0.7 meaning that the construct that is built is good or reliable (Hair et al., 2019). The following is the Table of Construct Reliability:

Table 3
Construct Reliability

Variable	AVE	Composite Reliability
Managerial Performance (KM)	0.657	0.938
Mutual Dependency (SK)	0.997	0.999
Environmental Uncertainty (KL)	0.603	0.819
Management Accounting System (SAM)	0.762	0.905
Organizational Culture (BO)	0.699	0.902

Source: SmartPLS 3.3 Programs

4.2 Measurement Model Analysis (Inner Model)

4.2.1 Coefficient of Determination (R2)

The R-Square values in this study are presented in the following Table 3.

Table 3
R-Square

Variable	R Square
Managerial Performance (KM)	0.488
Mutual Dependency (SK)	-
Environmental Uncertainty (KL)	-
Management Accounting System (SAM)	0.156
Organizational Culture (BO)	0.590

Source: SmartPLS 3.3 Programs

The R2 results of 0.67; 0.33; and 0.19 indicate the “good”, “moderate”, and “weak” models (Hair et al., 2019). Based on table 3, the R-Square value for the managerial performance variable is 0.488 meaning that the percentage of the influence of the mutual dependency variable, environmental uncertainty, management accounting system and organizational culture on managerial performance is 48.8% and the model is categorized as moderate.

4.2.2 Hypotheses Analytics

The results of hypotheses testing are presented in the following Table 4.

Table 4
Hypothesis Test Results

	Original Sample (O)	T Statistics ((O/STDEV))	P Values	Description
Mutual_Dependency → Managerial Performance	0.182	4,009	0.000	Accepted
Environmental_Uncertainty → Managerial Performance	0.296	2,470	0.014	Accepted
Environmental_Uncertainty → Organizational_Culture → Managerial Performance	0.277	4,154	0.000	Accepted
Mutual_dependency → SAM Broad Scope → Managerial Performance	0.016	0.451	0.652	Rejected

Source: SmartPLS 3.3 Programs

The first hypothesis which reads that mutual dependency has a positive influence on managerial performance of Swamitra Palm Oil Plantation in Riau is accepted because the p-values <0.05 , meaning that mutual dependency influences the increase of the managerial performance of Swamitra Palm Oil Plantation in Riau. This result strengthens the resource-based view where the company's process of reconfiguring resources owned can create a competitive advantage to win business competition. The result of this study is in line with those of (Utami, 2017; Nurpriandyni & Suwarti, 2011) which state that mutual dependency has a positive influence on managerial performance.

The second hypothesis which reads that environmental uncertainty has a positive influence on managerial performance of Swamitra Palm Oil Plantation in Riau is accepted because the p-value is <0.05 , meaning that environmental uncertainty plays a role in improving managerial performance. This result strengthens the resource-based view where the company's process of reconfiguring resources owned can create a competitive advantage to win business competition. The result of this study is in line with those of (Jayanti & Widodo, 2010; Ernawati, 2016) which state that environmental uncertainty has a positive influence on managerial performance.

The third hypothesis which reads that the management accounting system mediates the influence of mutual dependency on managerial performance of Swamitra Palm Oil Plantation in Riau is rejected because the p-value is >0.05 , meaning that the management accounting system does not play a mediating role in improving managerial performance. This result does not strengthen the resource-based view where the company's process of reconfiguring its resources cannot create a competitive advantage to win business competition.

The fourth hypothesis which reads that organizational culture mediates the influence of environmental uncertainty on managerial performance of Swamitra Palm Oil Plantation in Riau is accepted because the p-value is <0.05 , meaning that organizational culture plays a mediating role in improving managerial performance. This result strengthens the resource-based view where the company's process of reconfiguring resources owned can create a competitive advantage to win business competition.

5. Conclusions

This study aimed to develop a resource-based view through a conceptual model of managerial performance, mutual dependency, environmental uncertainty, management accounting system and organizational culture. The results show that only one hypothesis was rejected, namely the role of the management accounting system in mediating the influence of mutual dependency on managerial performance. The most effective pathway in improving managerial performance is the mediating pathway of organizational culture on the influence of environmental uncertainty on managerial performance because it has the largest path coefficient value, it can be concluded that this model can strengthen the resource-based view, where high mutual dependency and environmental uncertainty—accompanied by a good organizational culture can improve managerial performance. Managerial leadership of Swamitra Palm Oil Plantation in Riau must pay attention to the lowest achievement of each indicator such as planning performance, pooled mutual dependency, probability of success, future orientation information and involvement—which indicate that respondents feel that these indicators can still be improved. For this reason, efforts are needed so that these indicators can play a greater role in improving the managerial performance of Swamitra for Palm Oil Plantation in Riau. The role of the management accounting system in mediating the influence of mutual dependency on managerial performance needs special attention, especially by creating a future-oriented management information system.

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