



Performance Model: Environmental Uncertainty, Decentralization of Authority and Business Strategy on Managerial Performance (Property and Real Estate and Food and Beverage Sectors Listed on Indonesia Stock Exchange)

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Abstract: This study aims to create a performance prediction model by calculating the influence of environmental uncertainty, decentralization of authority, business strategy on performance with management accounting information system variables as a mediation variable. The study used primary data by distributing questionnaires to 51 companies listed on Indonesia stock exchanges in property and real estate sector and Food and Beverage sector. Data collected were 32 questionnaires from 9 companies (18%). Data processing shows that there is influence of environmental uncertainty on management accounting information system and performance. Further proves the effect of decentralization on management accounting information system and performance then proves the influence of management accounting information system on performance. However, management accounting information systems do not mediate the relationship of environmental uncertainty, decentralization of authority, business strategy on performance.

Keywords : Environmental Uncertainty, Decentralization of Authority, Business Strategy, Management Accounting Information System, Performance.

INTRODUCTION

Company activity is influenced by global economic condition. Companies must set strategies for facing competition in the global economic situation. Strategy as the determination of the basic long-term goals and objectives of an enterprise and the adoption of courses of action and the allocation of resources necessary for carrying these goals (Campbel *et. al.*, 2011:3) and business is organizations that try to create value for the customer (Gaspar *et. al.*, 2005:4). When companies run their activities, they ought to face uncertainty such as competition (Batemen and Snell, 2008:78). To deal deal with uncertain external environment the company performed a decentralized organization (Bateman and Snell, 2008:79) and

companies need to manage information (Griffin, 2012:81). According to the contingency approach, the level of information availability from management accounting system is not always the same for every organization, depend on the environmental uncertainty perception factors that affect the level of management accounting information needs (Agbejule, 2005; Gul, 1991).

Management accounting information systems assist managers in planning and controlling activities which is expected to facilitate the achievement of the objectives (Gul and Chia,1994; Atkinson *et. al.*, 2011:15). Through management accounting information systems, management accountants could formulate various strategies, make business plan, assist management in making decisions, protect corporate assets and compile various financial reports (Heidmann, 2008).

Dunk (2005), information system produces quality information that affects the performance improvement. Carton and Hofer (2006:4) explained that the performance is a measure of changes in the financial condition of an organization, or financial results of the implementation of management decisions by members of the organization. Performance is defined as the output or outcome of an organization and performance measurement can assist in the formulation and revision of the strategy (Gerson and Watkins, 2007:2; O'Toole and Meier, 2011: 2; Schulz *et. al.*, 2010; Mike and Neely, 2003).

Performance improvement aims to improve shareholder wealth, so strategies are needed to deal with environmental uncertainty. High levels of environmental uncertainty according to researcher observations are companies engaged in the food and beverage sector and property and real estate. This is due to impairment economic conditions, high competition and changes in taste. Weston and Copeland (1997: 35-36) states, food and beverage industry has characteristics such as easy entry into the market so that competition increases.

This study to create a performance prediction model from the effect of environmental uncertainty, decentralization of authority and business strategy on managerial performance. The objective of the study are as follow:

- (i) To determine the effect of environmental uncertainty on performance, mediated or not mediated by management accounting information system.
- (ii) To determine the effects of decentralization of authority on performance, mediated or not mediated by management accounting information system.
- (iii) To determine the effect of business strategies on performance, mediated or not mediated by management accounting information system
- (iv) To determine the effect of environmental uncertainty, decentralization of authority, business strategies on performance
- (v) To create performance prediction model

METHODOLOGY

Research Subject

All company from Property and Real Estate sector and food and beverage sector listed on the Indonesian stock exchange amount to 51 companies.

Procedures

This study uses primary data by spreading questionnaires to managers in two sectors. The statements on the questionnaire are based on dimensions and indicators that have been used by other researchers for each variable. Questionnaire results are filled by 5 managers for each company, calculated average, then processed to test the hypothesis.

Hypothesis base on theory and premise. The hypothesis in this study are:

Environmental Uncertainty and Managerial Performance

As Spicer cited from Milliken (1997:160), environmental uncertainty is an individual's perceived inability to predict an organization's environment accurately because of a lack of information, or an inability to discriminate between relevant and irrelevant data (John A. Wagner II *et. al.*, 2009:274; Strecker, 2009:64; Griffin and Moorhead, 2011:47; Daft and Marcic, 2010:56).

Daft *et.al* (2010:146), stated that uncertainty increases the risk of failure for organizational responses and makes it difficult to compute costs and probabilities associated with decision alternatives. Mia and Clarke (1999) stated that management accounting information system will support the company in facing competition challenge, helping to provide greater value-added than their competitors.

H1: Environmental uncertainties have positive significant influence on performance

H2: Environmental uncertainties have strong influence on performance mediated by management accounting information system

Decentralization and Managerial Performance

Decentralization is the tendency to disperse decision making authority in an organization structure (Koontz and Heinz Wehrich, 2008:18; Hansen and Mowen, 2006:418; Balakrishnan *et. al.*, 2008:663). Large organizations have complex activities, administration and other responsibilities (Gordon and Narayanan, 1984), It is necessary to delegate the authority and responsibility of top managers to subordinates. The delegation of authority is called the decentralization of authority. (Gordon and Narayanan, 1984). Decentralized organization require well-developed and well-integrated information system. The flow of information and open communication between divisions and upper and lower management is critical. Information on individual segments and business lines is more readily available than ever before (Waterhouse and Tiessen, 1978; Muslichah, 2002).

Decentralized organizations provide extensive authority and responsibility so that organizations can provide easy access to the information needed in decision making because the source of information can be obtained directly by individual managers when running their activities (Galbraith, 1973). The role of accounting management to provide relevant information at different levels of decentralization (Gerloff, 1973; Gul and Chia, 1994; Muslichah, 2002 and Chia, 1995).

H₃ : Decentralization of authority have positive significant influence on performance

H₄ : Decentralization of authority have strong influence on performance mediated by management accounting information system

Strategy and Managerial Performance

Strategy is a complete plan to achieve company goals (Griffin and Ebert, 2006:249; Shank and Govindarajan, 1993:94; Maciariello and Kirby, 1994:188; Anthony and Govindarajan, 1998:10; Porter, 1998a:1). Then, a business strategy is a set of integrated plans or actions designed to gain a profit that exceeds competitors by maximizing profits Warren and Fees (2008:5).

The company's success is derived from the development and implementation of effective strategies assisted by management accounting information (Blocher *et. al.*, 2002:4)

H5 : Business strategy have positive significant influence on performance

H6 : Business strategy have strong influence on performance mediated by management accounting information system

Management Accounting Information System Managerial Performance

Performance is defined as an organization's output or outcome (Wang, 2010:5; Whitmore, 2009:95; Gerson and Watkins, 2007:2; Verweire and Berghe, 2004:5). Performance can be measured through financial or non-financial that illustrate different dimensions of management action (*Said, et.al., 2003 cited from Banker and Datar, 1989; Ittner and Larcker, 1998*). Weston dan Copeland (1992:191), then measuring the company's financial performance can be through the classical approach (traditional financial ratios analysis), behavior approach, quantitative system, Seven-S, Quality Circle, EVA and MVA, Zeta Models, Cash Flow Ratios Analysis, and Z theory (Idrus dan Stanton 1991:245).

In many organisation the management accounting information system is the most developed of all the information systems and it is therefore critical that management accounting system is designed in accordance with the principles of system theory otherwise they will be less efficient (Lucey, 2003:1-2). Management accounting system is an information system that produces output by using input and various processes needed for certain purposes. The process can be described through various activities such as collecting, measuring, storing, analyzing, reporting, and managing information (Hansen and Mowen, 2006:4).

Information required is not only financial information but expanded to include operational information (non-financial), such as quality and processing time, as well as more subjective information such as job satisfaction measurement, employee skills, and new product performance (Atkinson *et. al.*, 2004:4).

That information generated by management accounting is oriented toward the future and provides information to managers within an organization to assist managers in planning, evaluation and control in order to achieve organizational goals and improve organizational performance (Procto, 2005:3-4; Atkinson *et. al.*, 2004:3, Rilla, 2015; Crosson and Needles, Jr, 2007: 29).

H7 : Management accounting information system have positif significant influence on performance.

Table 1
Operationalization of Variables

<i>Variable</i>	<i>Dimension</i>	<i>Scale</i>
Environmental Uncertainty	Supplier, Customer, product/service , technology (Gordon and Narayanan (1984)	Ordinal
Decentralization	– nature of formalization – number of layers in hierarchy – level of horizontal integration – locus of decision making – level of communication (Nahm <i>et. al.</i> (2003)	Ordinal
Strategy	– Prospectors, – Analyzer, – Defender – Reactors (Miles and Snow, 1978)	Ordinal
Managerial Performance	– Planning, – Investigating – Coordinating – Evaluating – Supervising – Staffing – Negotiating – Representing (Mahoney <i>et. al.</i> 1963; Gul <i>et. al.</i> , 1994).	Ordinal
Management Accounting Information System	– Information system quality – Information quality – System use, – Service quality DeLone and McLean (2008), N. Gorla <i>et. al.</i> (2010)	Ordinal

RESULTS

After 1.5 months of data collection, obtained answers from 9 companies. The results of data processing as follows:

Table 2
Validity and Reliability

<i>Var</i>	<i>Validity</i>			<i>Reliability</i>	
	<i>r biting</i>	<i>r table</i>	<i>r biting > r table</i>	<i>Cranbach a</i>	<i>Cronbach a > r table</i>
$X_{1,1}$	.612	.339	Valid	.842	Reliable
$X_{1,2}$	.734	.339	Valid	.842	Reliable
$X_{1,3}$	.709	.339	Valid	.842	Reliable

Contd. table 2

Var	Validity			Reliability	
	<i>r biting</i>	<i>r table</i>	<i>r biting > r table</i>	<i>Cranbach a</i>	<i>Cronbach a > r table</i>
X _{1,4}	.511	.339	Valid	.842	Reliable
X _{1,5}	.680	.339	Valid	.842	Reliable
X _{1,7}	.727	.339	Valid	.842	Reliable
X _{2,1}	.582	.339	Valid	.736	Reliable
X _{4,1}	.445	.339	Valid	.736	Reliable
X _{4,2}	.285*)	.339	Valid	.540	Reliable
X _{4,3}	.349	.339	Valid	.540	Reliable
Y _{1,1}	.509	.339	Valid	.540	Reliable
Y _{1,2}	.612	.339	Valid	.846	Reliable
Y _{1,3}	.456	.339	Valid	.846	Reliable
Y _{1,4}	.756	.339	Valid	.846	Reliable
Y _{1,5}	.547	.339	Valid	.846	Reliable
Y _{1,6}	.659	.339	Valid	.846	Reliable
Y _{1,7}	.731	.339	Valid	.846	Reliable
Y _{1,8}	.563	.339	Valid	.846	Reliable

*) Indicator X_{4,2} has *r* value (Corrected Item Total Correlation) < *r* table (0.349), it is concluded that the questionnaire indicators of this variable are declared invalid. But this indicator will not be deleted because it will cause the Alpha decrease to 0.537

Correlation Analysis

This research uses Pearson Product Moment correlation coefficient for evaluate the linear relationship between two variables. Evans (1996) suggest for the absolute value of *r*:

.00-.19 very weak (vw); .20-.39 weak (w); .40-.59 moderate (m); .60-.79 strong (s); .80-1.0 very strong (vs).

Table 3
Correlation

Output		EnUn (X ₁)	DA (X ₂)	BS (X ₃)	MAIS (X ₄)	MGP (Y)	X ₁ -X ₂	X ₁ -X ₃	X ₁ -X ₄	X ₁ -Y
EnUn (X ₁)	Pearson correlation	1	.225	-.071	.240	.071				
	Sig. (2-tailed)		.216	.697	.186	.699	W	S	VW	S
	N	32	32	32	32	32				
							X ₂ -X ₃	X ₂ -Y		
DA (X ₂)	Pearson correlation	.225	1	.166	.056	.255				
	Sig. (2-tailed)	.216		.364	.761	.159	W	S	VW	
	N	32	32	32	32	32				

Contd. table 3

Output		EnUn (X ₁)	DA (X ₂)	BS (X ₃)	MAIS (X ₄)	MGP (Y)	X ₁ -X ₂	X ₁ -X ₃	X ₁ -X ₄	X ₁ -Y	
								X ₃ -X ₄	X ₃ -Y		
BS (X ₃)	Pearson correlation	-.071	.166	1	.194	-.217					
	Sig. (2-tailed)	.697	.364		.288	.234	W	W			
	N	32	32	32	32	32					
								X ₄ -Y			
MAIS (X ₄)	Pearson correlation	.240	.056	.194	1	-.111					
	Sig. (2-tailed)	.186	.761	.288		.546	S				
	N	32	32	32	32	32					
MGP (Y)	Pearson correlation	.071	.255	-.217	-.111	1					
	Sig. (2-tailed)	.699	.159	.234	.546						
	N	32	32	32	32	32					

Table 4
T test MAIS

		Unstandardized Coefficients		Unstandardized Coefficients					
Model		B	Std. Error	Beta	T	Sig.	Collinearity Tolerance	Statistics	VIF
1	(Constant)	3.277	.370		8.856	.000			
	EnUn (X ₁)	.077	.054	.265	1.432	.163	.937	1.067	
	DA(X ₂)	-.022	.103	-.040	-.213	.833	.916	1.092	
	BS (X ₃)	.033	.027	.219	1.200	.240	.960	1.042	

a. Dependent variable: MAIS (X₄)

If sig > 0.05 then H₀ accepted

$$X_4 = 3.277 + 0.077X_1 - 0.022X_2 + 0.033X_3 + e$$

Table 5
T test MGP

		Unstandardized Coefficients		Unstandardized Coefficients					
Model		B	Std. Error	Beta	t	Sig.	Collinearity Tolerance	Statistics	VIF
1	(Constant)	2.914	1.892		1.540	.135			
	EnUn (X ₁)	.004	.145	.005	.026	.979	.873	1.145	
	DA(X ₂)	.433	.269	.300	1.608	.119	.915	1.093	
	BS (X ₃)	-.098	.073	-.251	-1.341	.191	.913	1.095	
	MAIS (X ₄)	-.211	.496	-.080	-.426	.673	.896	1.116	

a. Dependent variable: MGP (Y)

$$Y = 2.914 + 0.004X_1 + 0.433X_2 - 0.098X_3 - 0.211X_4 + e$$

H₀ : Environmental uncertainties have influence on performance

H₁ : Environmental uncertainties have positive significant influence on performance

Result: H₀ accepted

$$Y = 2.914 + 0.004X_1 + e \quad \dots(1)$$

H₀ : Decentralization of authority have influence on performance

H₃ : Decentralization of authority have positive significant influence on performance.

Result: H₀ accepted

$$Y = 2.914 + 0.433X_2 + e \quad \dots(3)$$

H₀ : Business strategy have influence on performance

H₅ : Business strategy have positive significant influence on performance.

Result: H₀ accepted

$$Y = 2.914 - 0.098X_3 + e \quad \dots(5)$$

H₀ : Management accounting information system have influence on performance

H₇ : Management accounting information system have positive significant influence on performance

Result: H₀ accepted

$$Y = 2.914 - 0.211X_4 + e \quad \dots(7)$$

Tabel 6
Model Summary MAIS

<i>Model summary^b</i>				
<i>Model</i>	<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>
1	.322 ^a	.104	.008	.12205

a. Predictors: (Constant), BS(X₃), EnUn(X₁), DA(X₂)

b. Dependent variable: MAIS(X₄)

R square = 0.104 this means that 10.4% of the X₄ variance can be explained by X₁, X₂ and X₃. While 89.6% is explained by other factors outside the model.

Table 7
Anova MAIS

<i>Anova^a</i>						
<i>Model</i>		<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
1	Regression	.048	3	0.16	1.080	.373 ^b
	Residual	.417	28	.015		
Total		.465	31			

a. Dependent variable: MAIS(X₄)

b. Predictors: (Constant), BS(X₃), EnUn(X₁), DA(X₂)

The table above shows the sig value = 0.373 > 0.05, means that independent variables simultaneously have no significant effect on the dependent variable (MAIS/ X_4).

Table 8
Model Summary MGP

<i>Model summary^b</i>				
<i>Model</i>	<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>
1	.374 ^a	.140	.013	.32010

a. Predictors: (Constant), MAIS(X_4), DA(X_2), BS(X_3), EnUn(X_1)

b. Dependent variable: MGP(Y)

R square = 0.140 this means that 14% of the Y variance can be explained by X_1 , X_2 , X_3 and X_4 . While 86% is explained by other factors outside the model.

Table 9
Anova MGP

<i>Anova^a</i>						
<i>Model</i>		<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
1	Regression	.451	4	.113	1.099	.377 ^b
	Residual	2.766	27	.102		
	Total	3.217	31			

a. Dependent variable: MGP(Y)

b. Predictors: (Constant), MAIS(X_4), DA(X_2), BS(X_3), EnUn(X_1)

The table above shows the sig value = 0.377 > 0.05, means that independent variables simultaneously have no significant effect on the dependent variable (MGP/ Y).

Table 10
Total Effects

<i>Total Effects (Group number 1–Default model)</i>				
<i>Model</i>	<i>BSX₃</i>	<i>DAX₂</i>	<i>EnDuX₁</i>	<i>MAISX₄</i>
MAISX ₄	.033	-.022	.077	.000
MGPY	-.105	.438	-.012	-.211
MAISX ₄	.033	-.022	.077	.000
MGPY	-.098	.433	-.004	-.211
MAISX ₄	.000	.000	.000	.000
MGPY	-.007	.005	-.016	.000

H₀: Environmental uncertainties have influence on performance without mediated by management accounting information system.

H₂ : Environmental uncertainties have strong influence on performance mediated by management accounting information system.

Result: H₀ accepted.

$$Y = 2.914 + 0.004X_1 - 0.12z + e \quad \dots(2)$$

H₀ : Decentralization of authority have influence on performance without mediated by management accounting information system.

H₄ : Decentralization of authority have strong influence on performance mediated by management accounting information system.

Result: H₁ accepted.

$$Y = 2.914 + 0.433X_2 + 0.438z + e \quad \dots(4)$$

H₀ : Business strategy have influence on performance without mediated by management accounting information system.

H₆ : Business strategy have strong influence on performance mediated by management accounting information system.

Result: H₀ accepted.

$$Y = 2.914 - 0.98X_3 + 0z + e \quad \dots(6)$$

DISCUSSION

This study proves the influence of environmental uncertainty on management accounting information system and performance. Further proves the effect of decentralization on management accounting information system and performance then proves influence of management accounting information system on performance. However, management accounting information systems do not mediate the relationship of environmental uncertainty, decentralization of authority, business strategy on performance.

Based on hypothesis test results from 32 firms, all of them show that H₀ is accepted, only X₁ - X₃, X₁ - Y, X₂ - X₄, and X₄ - Y show strong relationship coefficients, direct relationship has greater value than if using mediation management accounting information System in all variables X except X₂ (partial) is negative, although the influence of each variable X to Y is not significant. It is also shown that Y can be explained only by X₂, X₃, X₄ by 14%. However, this research supports the research by Chong and Chong (1997); Muslichah (2002); Ritonga (2009); Hammad, Jusoh and Nee Oon (2010); Chiou (2011); Chung, Fang Su and Ju, Su (2012); Suzanne Salmon (2013). For further research, it is important to separate respondents from the industrial sector used.

The influence of X₁ (environmental uncertainty) is very weak on the management accounting information system, but very strong against Y (performance). This means the company must always monitor the dynamic environment (external environment) so that performance does not go down. A procedure is needed to monitor uncertain environment.

There is a strong influence of X₂ on the management accounting information system. This means that the company needs to give higher authority in order that the manager can monitor the uncertainty of the environment and take the necessary action.

Weak influence of business strategy on management accounting information systems and performance. But there is a strong relationship between management accounting information systems for performance. This means companies need to design a management accounting information system in order to facilitate managers to coordinate because high decentralization needs a system to coordinate.

This study has not been able to distinguish between the effects of environmental uncertainty, the decentralization of authority on management accounting information systems and on performance based on business strategies from both sectors. It will be the researcher's goal for further research.

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