

# Agency Costs and Intellectual Capital in Indonesia Manufacturing Firms

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## Abstract

This research test the influence of intellectual capital on agency costs of the firm. Intellectual capital measured by VAIC<sup>TM</sup> developed by Pulic (2000). Agency costs on this research based on Ang *et al.* (2000) measured by total asset turnover and operating expenses ratio. Samples of this research are 90 manufacturing firms in Indonesia. This research uses multiple regression for analysis and also uses Newey-West to eliminate the heteroscedasticity and autocorrelation problems. The results show that intellectual capital has a positive influence on agency costs measured by asset turnover and has a negative influence on agency costs measured by operating expenses ratio. The finding suggests that intellectual capital of the firm can result better investment decisions and effect on productivity and efficiency.

**Keywords:** Agency Costs, Agency Conflict, Intellectual Capital

## 1. Introduction

The development of companies that getting bigger and complex make the owner of the companies (principals) need managers (agent) to help them. Owners and managers build a relationship in the nexus of contract and called agency relationship (Jensen and Meckling, 1976). In agency relationship, principal give authorities to managers to make decisions for the firms. Managers in take decision for the firm can consider only his own interests and result in the loss to owner of the firms (Jensen and Meckling, 1976). Misalignment of the interest between principals and managers arise agency costs and can be called with agency conflict.

Eisenhardt (1989) state that agency theory resolve two problems which is misalignment goals between principal and agent and principal does not know about agent actually doing. Many mechanisms can be used by owner of the firm to minimize agency conflict. Eisenhardt (1989) state that to reduce the agency conflict, principal of the firm can use information system, budgeting system, and reporting procedures. Jensen and Meckling (1976) state that managerial ownership and debt can be used to reduce agency conflict. Jensen (1986) state that dividend can reduce agency conflict on firm's free cash flow.

In knowledge based economic, intellectual capital which is asset of the firm has more important roles than fixed asset of the firm. Nakamura (2001) on Zeghal and Maaloul (2010) state that more better intellectual capital of the firm can cut factory's production cost and enhance sales. Marr (2008) state that intellectual capital can deliver value through its core activities. Better core activities or decision which made by intellectual capital, it means lower agency costs.

This research has two goals. The first goal is to test the effect of value added intellectual capital (VAIC<sup>TM</sup>) on agency costs measured by total asset turnover (TATO) and operating expenses (OPEX). The second goal is to test the effect of breakdown element of value added intellectual capital which is value added human capital (VAHU), value added capital employed (VACE), and value added structural capital (STVA) on agency costs measured by TATO and OPEX.

## 2. Literature Review

Intellectual capital of the firm consist of human capital and structural capital. Human capital elements are training and developments, entrepreneurial skills, employee safety, employee know-how (Abeysekera, 2005). Gan and Shaleh (2008) state that knowledge, skills, experience, and abilities of people with examples such as innovation capacity, creativity, know-how, and previous experience, teamwork, learning capacity. Structural capital elements are processes, routines, databases, customer files, software, manuals, organization structure (Appuhami, 2007). Management control system also part of structural capital (Massaro *et al.*, 2012). Information system, budgetary system, and reporting procedures which stated by Eisenhardt (1989) and can reduce agency conflict also part of structural capital. Gu and Lev (2003) state that performance of the firms depend on three kind of resource which are physical, financial, and intellectual. Intellectual capital consist of human capital and structural capital. Human capital is individual level organization consist of competency, attitude, ability to problem solving (Pablos, 2004). Pablos (2004) also define structural capital with all knowledge stay in organization.

Pulic (2000) developed measurement for intellectual capital named VAIC<sup>TM</sup> and shows about intellectual ability. VAIC<sup>TM</sup> is aggregate measurement for intellectual capital and has three elements which is value added human capital (VAHU), value added capital employed (VACE), value added structural capital (STVA). Chen *et al.* (2005), Kamath (2008), Zeghal and Maaloul (2010) used VAIC<sup>TM</sup> for their research to measure intellectual capital of firm. VAIC<sup>TM</sup> used in this research. Total asset turnover (TATO) and operating expenses ratio (OPEX)

based on Ang *et al.* (2000) used in this research to measure agency costs.

Human capital are persons who make investment decisions for the firm and better human capital can contribute in identified investment opportunities more better (Sudarsanam, 2004). Information system, budgeting system, and reporting procedures are element-element that can minimize agency conflict (Eisenhardt, 1989). All of the element stated by Eisenhardt (1989) are part of structural capital of the firm. So, we expect that intellectual capital has a negative influence on agency costs. Better intellectual capital of the firm can take a good investment decision which can be used to enhance productivity and efficiency. Hypothesis of this research as follows :

H1 : Value added intellectual capital has a negative influence on agency costs.

This research also breakdown the VAIC™ developed by Pulic (2000) into three component which are VAHU, VACE, STVA. There are another three hypotheses for see the effect of each element of VAIC which are VAHU, VACE, STVA on agency costs. Another hypothesis of this research as follows :

H2 : Value added human capital has a negative influence on agency costs

H3: Value added capital employed has a negative influence on agency costs

H4: Value added structural capital has a negative influence on agency costs

### 3. Data and Methodology

#### 3.1 Variable Measurement

This research test the effect of intellectual capital on agency costs in Indonesia's manufacturing firm. Data for this research used panel data in the form of financial ratio registered in Indonesia Stock Exchange (IDX) 2004-2013. The data obtained from IDX in the form of financial report which can be found from [www.idx.co.id](http://www.idx.co.id). This research take samples used purposive sampling with two criteria (1) manufacturing firm exposed complete financial report in 2004-2013 and (2) the firm not suspend or delisting. Fifty one firm are excluded because the firm not exposed its financial report. Finally, ninety firm are obtained for this research.

This research has two dependent variable which is total asset turnover (TATO) and operating expense ratio (OPEX). The independent variable of this research is value added intellectual capital (VAIC™), value added human capital (VAHU), value added capital employed (VACE), and value added structural capital (STVA). VAIC™ calculated based on Pulic (2000). This research also has three control variable based on Shiu (2006) which are return on equity (ROE), firm size (SZE), and debt ratio (DTA).

This research used multiple linear regression for analysis and used Newey-West for eliminate heteroscedasticity and autocorrelation problem. The hypothesis of this research would be tested using t-test in regression analysis.

Table 1. Research Variables

No.	Variable	Equation
<b>Dependent Variables</b>		
1	Total Asset Turnover	$TATO_t = \frac{\text{Sales}_t}{\text{Total Asset}_t}$
2	Operating Expenses Ratio	$OPEX_t = \frac{\text{Operating Expense}_t}{\text{Sales}_t}$
<b>Independent Variable</b>		
3	Value added intellectual Capital	$VAIC^{\text{TM}}_t = VAHU_t + VACE_t + STVA_t$
4	Value added human capital	$VAHU_t = \frac{\text{Value Added}_t}{\text{Total Employee Expenditure}_t}$
5	Value added capital employed	$VACE_t = \frac{\text{Value Added}_t}{\text{Physical Capital}_t + \text{Financial Capital}_t}$
6	Value added structural capital	$STVA_t = \frac{\text{Value Added}_t - \text{Total Employee Expenditure}_t}{\text{Value Added}_t}$
<b>Control Variables</b>		
7	Debt Ratio	$DTA_t = \frac{\text{Total Debt}_t}{\text{Total Asset}_t}$
8	Firm Size	$SZE_t = \ln(\text{total asset})$
9	Return on Equity	$ROE_t = \frac{\text{Net Profit}_t}{\text{Equity}_t}$

#### 3.2 Statistics Model

The multiple linear regression performed in this study. The model in this research analyze with Newey-West to

eliminate heteroscedasticity and autocorrelation problems. Therefore, the model used in this research as follows :

$$TATO_t = \alpha + \beta_1 VAIC_t + \beta_2 SZE_t + \beta_3 DTA_t + \beta_4 ROE_t + \epsilon_{it} \quad [1]$$

$$OPEX_t = \alpha + \beta_1 VAIC_t + \beta_2 SZE_t + \beta_3 DTA_t + \beta_4 ROE_t + \epsilon_{it} \quad [2]$$

$$TATO_t = \alpha + \beta_1 VAHU_t + \beta_2 VACE_t + \beta_3 STVA_t + \beta_4 SZE_t + \beta_5 DTA_t + \beta_6 ROE_t + \epsilon_{it} \quad [3]$$

$$OPEX_t = \alpha + \beta_1 VAHU_t + \beta_2 VACE_t + \beta_3 STVA_t + \beta_4 SZE_t + \beta_5 DTA_t + \beta_6 ROE_t + \epsilon_{it} \quad [4]$$

$TATO_t$  is total asset turnover in period t.  $VAIC_t$  is value added intellectual capital in period t.  $VAHU_t$  is value added human capital in period t.  $VACE_t$  is value added capital employed in period t.  $STVA_t$  is value added structural capital in period t.  $SZE_t$  is firm size in period t.  $DTA_t$  is debt ratio in period t.  $ROE_t$  is return on equity in period t.

#### 4. Results and Discussion

Table 2 shows the regression analysis with Newey-West for this research. There are three controlling variables for this research which are firm size (SZE), debt ratio (DTA), return on equity (ROE). This study employed four equations. Two equations for test the effect of value added intellectual capital to total asset turnover and operating expenses and the another two for test the effect of breakdown value added intellectual capital to total asset turnover and operating expenses.

Table 2. Multiple Regression with Newey West of Agency Costs with Controlling Variables

VARIABLES	1: TATO	2: OPEX	3: TATO	4: OPEX
Constant	8.3518*** (3.8841)	0.5359 (1.6320)	6.3771*** (3.0216)	0.8344 (3.2377)
VAIC <sup>TM</sup>	0.0351*** (3.3567)	-0.0089*** (-2.7914)		
VAHU			0.0153 (1.3102)	-0.0081*** (-2.6240)
VACE			0.4419*** (2.6369)	-0.0509 (-1.3467)
STVA			-0.0342 (-0.8849)	0.0267 (1.3773)
SZE	-0.6696*** (-3.5086)	-0.0075 (0.7769)	-0.5051*** (-2.6735)	-0.0341 (-1.7230)*
DTA	0.1117 (0.4874)	0.0468 (0.9357)	0.1343 (0.5386)	0.0435 (1.0016)
ROE	0.1203 (0.8354)	0.1200 (1.9642)	0.1569 (0.9323)	0.0920* (1.8508)
R-Squared	0.8305	0.8494	0.8380	0.8595
Adj. R-Squared	0.8034	0.8255	0.8116	0.8367

\* Significant at 10%, \*\* Significant at 5%, \*\*\* Significant at 1%

Table 2 and equation one show that the value added intellectual capital of the firm (VAIC<sup>TM</sup>) has positive coefficient (0.0351) on total asset turnover (TATO) and significant with  $\alpha=1\%$ . The results also show that VAIC<sup>TM</sup> has a negative coefficient (-0.0089) on operating expenses ratio (OPEX) and significant with  $\alpha=1\%$ . This result confirms that intellectual capital can reduce the agency costs. Intellectual capital of the firm consist of human capital and structural capital can make a better decisions on investments which produce productivity (total asset turnover) and efficiency (operating expenses ratio).

Table 2 and equation 3 show that value added of human capital (VAHU) only has a negative coefficient (-.0081) and significant with  $\alpha=1\%$  on agency costs measured by OPEX. The results also show that value added of capital employed (VACE) only has a positive influence (0.4419) and significant with  $\alpha=1\%$  on agency costs measured by TATO. The results show that value added of structural capital (STVA) does not has an influence on agency costs. This results confirms that to get investment decisions require a combination of all element of intellectual capital.

#### 5. Conclusion

Based on the research problem and results of this research, it can be concluded as follows :

1. Value added Intellectual capital has a negative influence and significant on agency costs
2. Value added human capital has a negative influence and significant on agency costs measured by operating expenses ratio
3. Value added capital employed has a negative influence and significant on agency costs measured by total asset turnovers
4. Value added structural capital does not significant on agency costs

Recommendations for the further research :

1. This research only do on manufacturing sector. The further research can do on another sector such as property, financial institutions and banking
2. This research only see the effect of intellectual capital on agency costs measured by total asset turnover and operating expenses ratio. The further research can use another measurement of agency costs or agency conflicts
3. Research can test the effect of intellectual capital on value of the firm

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