Intellectual Capital and Agency Conflict

** Hendra Wijaya*
*** Eduardus Tandelilin*
**** Mudjilah Rahayu*
***** Hermeindito*

Abstract

The present research discussed the effect of intellectual capital on agency conflict through investment decision, financing decision, and dividend policy. The research used panel data with a sample of 90 manufacturing firms listed on the Indonesia Stock Exchange (IDX) between 2004-2013. The research used three stages least squares estimation technique to test simultaneous model and z-clogg to compare coefficient between the two models. Simultaneous model showed that the negative effect of investment decision, financing decision, and dividend policy on value of a firm reduced with the existence of higher intellectual capital. Based on the analysis, it can be concluded that investment decision, financing decision, and dividend policy showed agency conflict. Higher intellectual capital in a firm helps in reducing the agency conflict in a firm ; so, it can be concluded that intellectual capital can direct management behavior leading to decisions that increase the value of the firm.

Key words : **intellectual capital, investment decision, financing decision, dividend policy, agency conflict**

JEL Classification : G3, G30, G32

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Increasingly large and complex firms certainly require complex management too. At first, the management of the firm does not require a separation between ownership and control but at the later stage it grows to be separated between ownership and control. This is because the shareholders of the firm need others to manage the firm. Jensen and Meckling (1976) stated that the separation between ownership and control induced an agency relationship between shareholders (principals) of the firm and the manager (agent).

This agency relationship also means that the principals delegate some authority to the manager to take corporate decisions and make policies on behalf of the firm's principals. A manager can heed his/her own interest in decision making for principals or does not have goal congruence with the principals. This creates agency conflict. The agency conflict that occurs in the firm can cause loss of wealth for shareholders (Jensen & Meckling, 1976).

The financial function in companies is run by top-level management i.e. the finance director or chief financial officer (CFO). The duty of finance managers is to make three primary finance decisions : (a) appropriate investment decision, (b) financing decision, and (c) dividend policy decision to maximize shareholder value (Brigham & Houston, 2004). Shareholder value is reflected in the price per share of the firm. Investment decision is a process to identify investment opportunities that add value and take a decision to work on these opportunities.

* *Lecturer,* Faculty of Business, Widya Mandala Catholic University Surabaya, Indonesia, 42-44 Dinoyo Street, Surabaya-60265, East Java, Indonesia. E-mail : hendrawijayagoei@gmail.com
** *Professor of Finance,* Faculty of Economics and Business, Universitas Gadjah Mada, Indonesia.
*** *Senior Lecturer,* Faculty of Business, Widya Mandala Catholic University Surabaya, Indonesia.
**** *Senior Lecturer,* Graduate School of Management, Universitas Ciputra, Indonesia.

Financing decision is a firm decision to decide the optimal capital structure for the operation of the firm. Optimal capital structure is the combination of debt and equity for the firm's operation. Dividend policy determines the portion of net income distributed to shareholders in the form of dividend by considering the need of internal funds to have profitable projects.

Empirical evidence supports the effect of investment decision on a firm's value. Investment decision affects a firm's value positively when the investment of the firm has not reached the optimal level or when there are investment opportunities with a certain quality. They negatively affect a firm's value when the investment passes the optimal level (Del Brio, De Miguel, & Pindado, 2003; Hsiao, Hsu, & Hsu, 2011; Morgado & Pindado, 2003). Other evidences obtained through research conducted by Chen (2006) found that investment decision has negative effect on a firm's value. Kim, Lyn, Jun Park, and Zychowics (2005) found that investment decision of a firm that is affiliated with Chaebol (big group in Korea) did not increase the firm's value because of overinvestment.

Empirical evidence supports the belief that financing decision affects a firm's value. Debt has a positive effect on a firm's value (Afzal & Rohman, 2012; Antwi, Mills, & Zhao, 2012; Chowdury & Chowdury, 2010; Ogbulu & Emeni, 2012). The opposite was argued that debt did not affect a firm's value (Fenandar & Raharja, 2012; Naceur & Goaied, 2002; Negi, Sankpal, Mathur, & Vaswani, 2012; Rakhimsyah & Gunawan, 2011). Alonso, Itturiaga, and Sanz (2005) & Itturiaga and Crisotomo (2010) stated that debt negatively affects a firm's value when it has high growth opportunities and it positively affects a firm's value when the opportunities of growth for the firm are low.

Empirical evidence supports the belief that dividend policy affect a firm's value. Dividend policy has a positive effect on a firm's value (Baker, Powell, & Veit, 2002; Fenandar & Raharja, 2012; Gregoriou, 2012). Dividend has a positive effect on a firm's value when the firm has no growth opportunities and does not affect it when it has growth opportunities (Alonso et al., 2005; Itturiaga & Crisotomo, 2010 ; La Porta, Lopez-de-Silanes, De Silanes, Shleifer, & Vishny, 2000).

The opposite was argued by Miller and Modigliani (1961). They said that dividend does not affect share value and this was supported by the research of Afzal and Rohman (2012), Naceur and Goaied (2002), and Rakhimsyah and Gunawan (2011).

Tseng and Goo (2005) suggested a theoretical framework of research based on the theory of micro perspective. They stated that intellectual capital is a firm's asset in driving firm value through the process of value creation. Intellectual capital is an important asset which takes on a more dominant role than the firm's physical asset with the shift of the economy from industrial to a knowledge based economy to achieve competitive advantage and to create firm value (Sudarsanam, Sorwar, & Marr, 2005).

Pulic (2000) developed intellectual capital measurement for a firm. He added intellectual coefficient (VAIC™) and divided the intellectual capital into two i.e., human capital and structural capital. Furthermore, he enclosed the capital employed which describes the firm input in a form of financial asset and fixed asset. Pulic (2000) also stated that higher the value of VAIC™, the better the management for utilizing or managing the firm's potential. Pulic (2004) stated that the value of VAIC™ shows intellectual ability. VAIC™ has been used by several researchers such as Chen, Cheng, and Hwang (2005) ; Maditinos, Chatzoudes, Tsairidis, and Theriou (2011) ; Tan, Plowman, and Hancock (2007) ; and Zeghal and Maaloul (2010).

Management consists of several managers as agents according to agency theory and shareholders are principal. Management that is supported by structural capital of a firm constitutes the firm's intellectual capital in micro perspective. The role of the management is to optimize firm value and wealth of the shareholder through investment decision, financing decision, and dividend policy. Past research found that intellectual capital had a positive effect on a firm's value (Appuhami, 2007; Chen et al., 2005; Shiu, 2006; Tan et al., 2007; Zeghal & Maaloul, 2010) and it could increase a firm's value. Agency relationship perspective shows that there is goal congruence between management and shareholders.

The relationship between intellectual capital and financial decision was explained by Sudarsanam et al. (2005) and Tayles, Pike, and Sofian (2006) who stated that intellectual capital contributes to competitive advantage and value creation through the identification of investment opportunities. Furthermore, Hackbart (2008) stated that a manager who has orientation towards value creation can take financing decision after considering tax savings, default risk, and taking into account the firm's operational efficiency.

Earlier empirical evidences explained the effect of investment decision, financing decision, and dividend policy on a firm's value. Earlier empirical evidence explained the effect of positive intellectual capital on the value of the firm. Furthermore, a research has been conducted and it is really interesting to search deeply about the role of intellectual capital in agency conflict and in taking investment, financing, and dividend policy decisions in a manufacturing firm that go public in Indonesia. Hence, the purpose of this research was (a) to examine intellectual capital against agency conflict with a look at the effect of investment decision on the value of a firm (b) to examine intellectual capital against agency conflict with a look at the effect of financing decision on the value of a firm (c) to examine intellectual capital against agency conflict with a look at the effect of dividend policy on the value of a firm.

This research contributes to the literature of financial research by providing empirical evidence about the effect of intellectual capital on agency conflict that occurs in three major financial decisions i.e. investment decision, financing decision, and dividend policy. The methodology used in this research was also different from that of earlier researches. This research examines the role of intellectual capital on agency conflict by comparing the effect of investment decision, financing decision, and dividend policy on value of the firm before and after the effect of intellectual capital with z-clogg which was proposed by Clogg, Petkova, and Haritou (1995) and Paternoster, Brame, Mazerolle, and Piquero (1998).

Literature Review

(1) Theoretical Background : The separation between ownership and control causes delegation of authority from shareholders to managers to take decisions and make policies on behalf of shareholders. This delegation of some authority shows an agency relationship (Jensen & Meckling, 1976). The role of managers is to maximize the wealth of the shareholders through price per share. This agency relationship also creates asymmetry of information between shareholders and managers because managers have more information about the internal condition of the firm. Jensen and Meckling (1976) also stated that decision taken by managers did not always maximize shareholder value nor does it align with shareholder interest. It creates agency conflict that can result in loss of wealth for the shareholders.

Jensen and Meckling (1976) stated that agency conflict that occurs between shareholders and managers could be minimized with the use of debts. This is because debt can be used for the purpose of credit. Hence, there is a control over activity of managers in taking decisions for a firm. This was supported by Lee and Lee (2014) who found that higher level of leverage can reduce agency conflict. Jensen (1986) stated that agency conflict arises when the internal fund of the firm is used for financing the investment. Agency conflict arises when managers can use funds for investment without precaution and this leads to overinvestment. This agency conflict can be overcome by distributing profit in the form of dividend to shareholders. Financing of the investment could use the fund in the form of debt. Debt could make managers more careful in taking decision making compared to when they used the firm's internal fund. This is because managers have a responsibility to return the principal and interest of the debt to the creditors. This was supported by the study of Khan, Kaleem, and Nazir (2012) who found that leverage can reduce the agency cost of free cash flow.

Modigliani and Miller (1963) regarded the benefits of debt as tax savings (tax shield trade off) and concluded that the use of debt could be a positive influence on the value of the firm because the interest arising from debt resulted in tax savings, so higher debt might increase a firm's value because of increase in earnings. The use of debt

by a firm also leads to companies running the risk of bankruptcy. Trade-offs between tax savings and bankruptcy costs lead to optimal capital structure. Risky debt can negatively affect the value of the firm. Myers (1977) stated that the issuance of risky debt can negatively affect the value of a firm because using risky debt can cause the firm to skip investment opportunities with positive net present value which could contribute positively to the firm's value. Myers also stated that investment decisions reflected the going concern of a firm and its ability to generate future cash flows.

Miller and Modigliani (1961) suggested that dividend did not affect stock price, since a firm's shareholders can benefit through dividends or share price increase and, if cash is needed, then shareholders may sell some shares. Rozeff (1982) stated that a firm fixed lower dividend payment when it has high growth opportunities that can lead to higher investment spending. This is due to high cost of external financing. Rozeff (1982) also stated that a firm establishes lower dividend payment when facing a higher beta coefficient. This means that companies have higher operating and financial leverage. A firm already had a high level of fixed costs and to avoid costs of external financing so that the firm paying dividends is lower. Rozeff (1982) suggested that with payment of dividends a firm could reduce agency costs, but it also increases transaction costs of external fund. The optimum level of dividend payment is the payment of dividend that can minimize the sum of these costs. Rozeff (1982) found that the growth of a firm and beta negatively affect a firm's dividend payments.

(2) Intellectual Capital : Intellectual capital is an important asset that has a greater role than physical asset in the knowledge based economic era to enhance competitive advantage and create firm's value (Pulic, 2004). Karchegani, Sofian, and Amin (2013) stated that intellectual capital is a vital asset that can help organizations create value. Tseng and Goo (2005) stated that intellectual capital is an intangible firm asset which has a role in the process of value creation. Brennan and Connel (2000) and Chen et al. (2005) stated that the difference between market value and firm book value which could not be identified in the financial statement could be explained by a firm's intellectual capital that acts as a source of economic value creation and firm competitive advantage that is more dominant. Appuhami (2007), Chen et al. (2005), Shiu (2006), Tan et al.(2007), and Zeghal and Maaloul (2010) said that intellectual capital has a positive effect on a firm's value in agency relationship perspective and there is a goal congruence between shareholders and manager. Alipour (2012) found that better intellectual capital of the firm can generate better financial performance.

Intellectual capital consists of human capital and structural capital and higher the intellectual capital better the management (Pulic, 2000). Marr, Schiuma, and Neely (2004) defined human capital as expertise, competency, commitment, motivation, loyality, and skills to solve problems, creativity, education, and attitude. Bontis (1998) defined human capital as a combination of genetic inheritance, education, experience, and attitude. Bontis (1998) defined structural capital as a structure and mechanism of an organization to support employees reach optimum intellectual performance and business performance. Bontis (1998) also stated that individual can have high intellect but when the organization has a bad system and procedure, the intellectual capital cannot reach it maximum potential. Pablos (2004) stated that structural capital is knowledge in a certain level of the organization and it stays with the organization when an employee leaves. Massaro, Bardy, and Pitts (2012) stated that control system management is a part of structural capital.

(3) Business Phenomenon in Indonesia : There is agency conflict in Indonesian firms. This was proved by Setiani (2013) who conducted a research on automotive firms for the period 2004 to 2007. Setiani (2013) showed that investment decision did not affect a firm's value. Cahyaningdyah and Ressany (2012) conducted a research for a BUMN firm in the year 2008-2010 and showed that the investment decision had a negative effect on a firm's value. Wahyudi and Pawestri (2006) conducted a research on firms which were listed on Indonesia Stock Exchange and showed that investment decision did not affect a firm's value.

The relationship between financing decision and dividend policy and their impact on a firm's value also show occurence of agency conflict in case of Indonesia. This was shown by Prasetyorini (2013) who conducted a research on industrial and chemical firms in the years 2008 to 2011 and showed that use of debt did not affect a firm's value. Dj, Artini, and Suarjaya (2012) conducted a research on manufacturing companies for the period 2006 to 2009. They showed that financing decision and dividend policy have no effect on a firm's value. Yuliani, Isnurhadi and Bakar (2013) conducted a research on all companies which were listed on Indonesia Stock Exchange. Bank and financial institutions showed that investment decision and dividend policy have no effect on a firm's value.

Hypotheses Development

Based on the theoretical background, intellectual capital, and business phenomenon in Indonesia, it can be concluded that better intellectual capital can identify more optimal investment opportunities and leads to taking investment decision that increase a firm's value. Sudarsanam et al. (2005) stated that intellectual capital has a role in identifying investment opportunities. Tayles et al. (2006) stated that a firm which has better intellectual capital has advantages in identifying investment opportunities in the future. Better intellectual capital also increases a firm's value by decreasing investment when it is in over-investment condition.

↳ **H_1 :** Intellectual capital reduces agency conflict in investment decision.

Good intellectual capital can take optimal financing decision. Intellectual capital can increase the use of debt when a firm still gets the benefits of the use of debt as control mechanism and tax savings, and is also able to manage the risk of firm bankruptcy. Better intellectual capital is able to increase a firm's value by decreasing debt when the firm faces high bankruptcy risk. Hackbart (2008) stated that a manager takes financing decision considering tax savings, default risk and taking into account a firm's operating efficiency to increase its value.

↳ **H_2 :** Intellectual capital reduces agency conflict in financing decision.

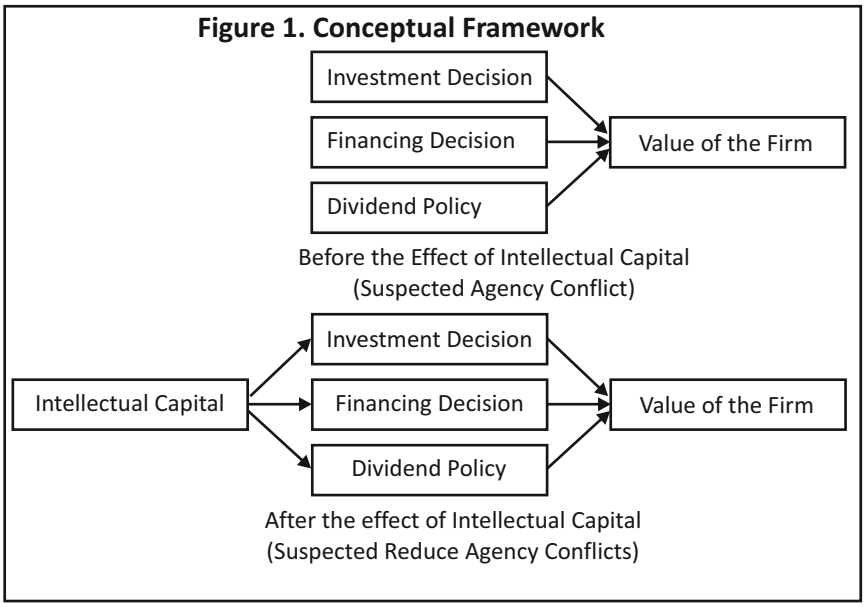
Better intellectual capital can make dividend policy more optimal and increase a firm's value. Intellectual capital can distribute profit in the form of dividend when a firm is in the mature condition characterized by lack of investment opportunities. Profit distribution in the form of dividend is used as control mechanism for agency conflict to free cash flow of firm (Jensen, 1986). Intellectual capital can reduce dividend, when a firm needs internal fund to finance its investment opportunities, so it does not skip investment opportunities that have added value due to the high cost of external funding.

↳ **H_3 :** Intellectual capital reduces agency conflict in dividend policy.

Based on literature review and research hypothesis, the concept and structure of the present research is as shown in Figure 1. The Figure 1 describes the effect of investment decision, financing decision, dividend policy on a firm's value before the use of intellectual capital and after the use of intellectual capital. The research looked at differences in agency conflicts by looking at the effect of investment decisions, financing decisions, and dividend policy on the value of a firm before the effect of intellectual capital and after the effect of intellectual capital.

Research Method

Data used in this research was secondary data in the form of panel data. Data that was collected was financial data



such as financial ratio in manufacturing firms which were registered in Indonesia Stock Exchange in the year of 2004-2013. The data are obtained from Indonesia Stock Exchange (IDX) in the form of yearly financial report from the year 2004 until 2013 and was available on www.idx.co.id and *Penelitian dan Pelatihan Ekonomika dan Bisnis (P2EB) Fakultas Bisnis dan Ekonomika Universitas Gadjah Mada* (UGM). Samples of 90 companies were obtained by purposive sampling technique with three criteria (a) manufacturing firms listed in Indonesia Stock Exchange between 2004-2013 ; (b) manufacturing firms whose financial reports were completed in the observation period and provided complete information for the purposes of research; (c) The firm was not suspended/closed or delisted. The list of companies by industry group is shown in the Table 1.

This research used three stages least squares (3SLS) and difference coefficient test in the two equations in hypothesis testing. Difference coefficient test in the two equations follows the methods proposed by Clogg et al. (1995) and Paternoster et al. (1998). The two simultaneous equations, each of which consists of four equations that were developed and tested in this study are as follows:

First Simultaneous Equation

$$GCI_{it} = \alpha + \beta_{11} SZE_{it} + \beta_{12} BEP_{it} + \beta_{13} SLS_{it} + \varepsilon_{it}$$
$$IBD_{it} = \alpha + \beta_{21} BEP_{it} + \beta_{22} SZE_{it} + \beta_{23} RBS_{it} + \beta_{24} CVA_{it} + \varepsilon_{it}$$
$$DYR_{it} = \alpha + \beta_{31} RBS_{it} + \beta_{32} BEP_{it} + \beta_{33} SZE_{it} + \varepsilon_{it}$$
$$LSP_{it} = \alpha + \beta_{41} GCI_{it} + \beta_{42} IBD_{it} + \beta_{43} DYR_{it} + \beta_{44} BEP_{it} + \varepsilon_{it}$$

Second Simultaneous Equation

$$GCI_{it} = \alpha + \beta_{51} VAIC_{it} + \beta_{52} SZE_{it} + \beta_{53} BEP_{it} + \beta_{54} SLS_{it} + \varepsilon_{it}$$
$$IBD_{it} = \alpha + \beta_{61} VAIC_{it} + \beta_{62} BEP_{it} + \beta_{63} SZE_{it} + \beta_{64} RBS_{it} + \beta_{65} CVA_{it} + \varepsilon_{it}$$
$$DYR_{it} = \alpha + \beta_{71} VAIC_{it} + \beta_{72} RBS_{it} + \beta_{73} BEP_{it} + \beta_{74} SZE_{it} + \varepsilon_{it}$$
$$LSP_{it} = \alpha + \beta_{81} GCI_{it} + \beta_{82} IBD_{it} + \beta_{83} DYR_{it} + \beta_{84} BEP_{it} + \varepsilon_{it}$$

Notes :
GCI = investment decision,

Table 1. Samples by Industry Group

No	Industry Group	Count
1	Footwear	1
2	Pharmacy	8
3	Cables	6
4	Wood and Processing	2
5	Ceramic, Porcelain, Glass	4
6	Chemical	7
7	Cosmetics and Household Goods	3
8	Metal	11
9	Food and Beverages	10
10	Automotive and Component	11
11	Animal Feed	2
12	Household Appliances	3
13	Plastics and Packaging	5
14	Pulp and Paper	2
15	Cigarette	3
16	Cement	3
17	Textiles and Garments	9
	Total	**90**

IBD = financing decision,
DYR = dividend policy,
LSP = firm value,
SZE = firm size,
BEP = profitability,
SLS = sales,
CVA = asset structure,
RBS = business risk,
VAIC™ = intellectual capital.

This research has a variable called intellectual Capital *(VAIC™)* that is value added of intellectual capital (Chen et al., 2005); investment decision *(GCI)* is ratio of working capital added gross fixed assets to total assets (Brigham & Houston, 2004); financing decision *(IBD)* is the ratio of interest bearing debt to total asset (Hermeindito, 2002); dividend policy *(DYR)* is ratio dividend per shares to price per shares (Naceur, Goaied, & Belanes, 2006) ; firm value *(LSP)* is natural logarithm from market capitalization (Anam, Fatima, & Majdi, 2011) ; sales *(SLS)* is the ratio of sales to total assets (Vogt, 1994) ; business risk *(RBS)* is standard deviation from ratio of net income to total assets (Herdinata, Tandelilin, & Hermeindito, 2013) ; firm size *(SZE)* is logarithm from total assets (Jensen, Solberg, & Zorn, 1992) ; profitability *(BEP)* is the ratio of operational profit to total assets (Jensen et al., 1992).

The first stage in the preparation of simultaneous equations is to have order and rank. Simultaneous testing must meet over identified requirement (K-$k > m$-1) or exact identified (K-$k = m$-1) (Gujarati, 2004). K is exogenous variables of simultaneous equation ; k is exogenous variables of specific equations; m is an endogenous

variable in a certain equation. The second stage is to perform Hausmann specification test by creating reduced form equation by inserting the entire exogenous variable to the endogenous variable. Third stage is to find residual value and add the residual value to the research equation. It is subsequently regressed using ordinary least squares (OLS), if residual coefficient is significant, it meets the requirement simultaneous test. Fourth stage is to get residual coefficient from the four equations in the research and conduct Pearson correlation test. If significant correlation is found then the analysis technique used is three stage least squares (3SLS). Once 3SLS test is obtained, further testing of difference coefficient is done from two equations with method described by Clogg et al. (1995) and Paternoster et al. (1998).

Results

Table 2 shows the descriptive statistic from research variable of 90 companies as sample in this research. The average value from investment decision variable *(GCI)* is 0.0962, this shows that generally 9.62% of the total firm assets are the result of new investment in the form of working capital and fixed assets. The average value from financing decision variable *(IBD)* is 31.02%. This shows that 31.02% of firm assets are generally funded by interest bearing debt. The average value from dividend policy variable *(DYR)* is 1.64% and this shows that generally firms distribute 1.64% dividend per share from the share price.

The average value from firm value *(LSP)* is 7,384.32M. This shows that generally firm's market capitalization reached 7,384.32M. The average value of intellectual capital *(VAIC™)* is 3.1730, which means that generally it is added value for shareholders in the form of net profit, for government in the form of tax, for creditors as interest, and for employees as salary that are three times of assets that are invested in the form of salary or fixed asset.

Table 2. Descriptive Statistics of Research Variables

Variable	Unit	*N*	Mean	Std. Dev.	Max	Min
GCI	Times	900	0.0962	0.1286	0.8104	-0.5165
IBD	Times	900	0.3102	0.3791	3.1116	0.0000
DYR	Times	900	0.0164	0.0247	0.1554	0.0000
LSP	Billion	900	7.3843	28.8599	307.6750	0.0098
VAIC™	Times	900	3.1730	2.6317	25.8408	-15.8750
SZE	Billion	900	4.2142	13.9773	213.9940	0.0277
BEP	Times	900	0.0751	0.1445	0.9733	-0.8502
SLS	Times	900	1.2171	0.6650	5.6591	0.0199
CVA	Times	900	0.3559	0.2023	0.9979	0.0052
RBS	Times	900	0.0543	0.0443	0.2915	0.0045

Notes :
GCI = investment decision ; *IBD* = financing decision ; *DYR* = dividend policy ; *LSP* = firm value ; *VAIC™* = intellectual capital ; *SZE* = firm size ; *BEP* = profitability ; *SLS* = sales; *CVA* = asset structure ; *RBS* = business risk

Test result of simultaneous equation in this research using three stage least square (3SLS) is shown in the Table 3.

Analysis and Discussion

The empirical test result in Table 3 shows that investment decisions in manufacturing companies in Indonesia

Table 3. Simultaneous Equation Test Results

	BEFORE AFFECTED BY INTELLECTUAL CAPITAL				AFTER AFFECTED BY INTELLECTUAL CAPITAL			
Variables	***GCI***	***IBD***	***DYR***	***LSP***	***GCI***	***IBD***	***DYR***	***LSP***
INTERCEPT	-1.3707 (-3.78)***	2.0407 (3.39)***	-0.0295 (0.57)	53.6130 (4.18)***	-1.7334 (-4.91)***	2.5443 (4.50)***	0.0568 (1.29)	28.8704 (29.41)***
GCI				-35.5254 (-1.73)*				4.3496 (1.90)*
IBD				-37.3335 (-2.05)**				-4.5295 (-3.74)***
DYR				-660.8335 (-1.91)*				-86.1781 (-1.65)*
VAIC					0.0075 (3.49)***	0.0158 (4.38)***	-0.0008 (-2.52)**	
SZE	0.1378 (4.47)***	-0.1375 (-2.68)***	0.0030 (0.68)		0.1644 (5.48)***	-0.1877 (-3.89)***	-0.0039 (-1.04)	
BEP	0.2939 (6.35)***	-0.5237 (-6.84)***	0.0019 (0.29)	-9.6418 (-1.44)	0.1973 (3.66)***	-0.6800 (-7.90)***	0.0113 (1.53)	-1.8797 (-2.16)**
SLS	0.0141 (1.23)				0.0205 (1.81)*			
CVA		-0.0574 (-0.78)				-0.0482 (-0.65)		
RBS		0.4160 (1.97)**	-0.0278 (-1.52)			0.2610 (1.19)	-0.0331 (-1.79)*	

Notes : *** = 1% significant level; ** = 5% Significant level 5%; * = 10% Significant level

Table 4. Test Results of Difference Coefficient Tests in Two Equations with Clogg Method

Variable	GCI	Variable	IBD	Variable	DYR
β_{41}	-35.5254	β_{42}	-37.3335	β_{43}	-660.8335
β_{81}	4.3496	β_{82}	-4.5295	β_{83}	-86.1781
β_{81}- β_{41}	39.8750	β_{82}- β_{42}	-32.8040	β_{83}- β_{43}	-574.6554
SE_{41}	20.4948	SE_{42}	18.2332	SE_{43}	345.7373
SE_{81}	2.2835	SE_{82}	1.2115	SE_{83}	52.1922
$\sqrt{(SE_{81}^2 + SE_{41}^2)}$	20.6216	$\sqrt{(SE_{82}^2 + SE_{42}^2)}$	18.2734	$\sqrt{(SE_{83}^2 + SE_{43}^2)}$	349.6546
Z-Clogg	1.93**	*Z*-Clogg	1.80**	*Z*-Clogg	1.64*
Z-table (5%)	1.65	*Z*-table (5%)	1.65	*Z*-table (10%)	1.34

Notes : ** = Significant level 5% ;* = Significant level 10%

were negatively affected by intellectual capital (β_{41} = -35.5254). Investment decision lowered a firm's value. On the basis of agency theory perspective, it can be seen that investment decision which is taken by the manager who received delegation from shareholders did not maximize shareholder value or agency conflict arose. The reason is that the investment decision which is taken by the manager reached overinvestment, so it has a negative effect on shareholder value. This research was supported by the research conducted by Cahyaningdyah and Ressany (2012), Chen (2006), Morgado and Pindado (2003), and Setiani (2013).

The test result in Table 3 shows that the coefficient of investment decision before being affected by intellectual capital (β_{41} = -35.5254) has a negative effect on the firm's value and is significant. The test result showed that the coefficient of investment decision after the effect of intellectual capital (β_{81} = 4.3496) has a positive effect on a firm's value and is significant at 10%. The test result in Table 4 shows that value of *z*-Clogg (1.93) > *z*-table (1.65) means that first hypothesis (H_1) of this research cannot be rejected that is intellectual capital reduces agency conflict in investment decision and it means that more the intellectual capital consists of human capital and structural capital, the better investment decisions that enhance firm's value. It also means that agency conflict of the firm reduces.

The explanation of the result is that a firm in its investment decision faces the process of investment opportunities identification. This process needs accuracy in estimating the rate of return of investment and net present value (NPV) of investment. The accuracy level of rate of return of investment and NPV depends on the accuracy in estimating the revenue that can be earned by a firm over the next few years, and expenses of the firm. The accuracy in estimating revenue requires analysis of competition intensity. This research found that better intellectual capital in a manufacturing firm registered in Indonesia Stock Exchange could reduce agency conflict in investment decision. This explains that intellectual capital in Indonesia can identify optimally investment opportunities and lead to taking investment decision that can increase firm value.

The empirical test result in Table 3 shows that financing decision in manufacturing companies in Indonesia before use of intellectual capital has a negative effect (β_{42} = -37.3335) on a firm's value. Debt financing can decrease a firm's value, this was caused by the higher use of debt make a higher bankruptcy risk to be borne by the shareholders of the firm. Hermeindito (2002) found that debt has no linear relationship with the firm's value and found that debt until optimal level has a positive relationship with a firm's value and vice versa when it has passed optimal level. Bankruptcy risk that is borne by the firm's lead manager to skip several profitable projects, this was supported by Alonso et al. (2005), Ituriaga and Crisotomo (2010), Myers (1977), and Stulz (1990).

The test result in Table 3 showed that the coefficient of financing decision before being affected by intellectual capital (β_{42} = -37.3335) has a negative effect on a firm's value and is significant at 5%. The test result showed that the coefficient of financing decision after the effect of intellectual capital (β_{82} = - 4.5295) has a negative effect on a firm's value and is significant at 5%. The test result in Table 4 shows that value of *z*-Clogg (1.80) is greater than 1.65 (from *z*-table). This means that the second hypothesis (H_2) of this research cannot be rejected i.e. intellectual capital reduces agency conflict in financing decision and it means that better intellectual capital consists of human capital and structural capital and it can generate better financing decisions that enhance a firm's value. It also means that agency conflict of the firm is reduced.

The explanation about the finding in this research is that the use of debt has several benefits that are agency conflict mechanisms and tax savings. Other than benefits, debt also contains bankruptcy risk which means higher the debt, higher the bankruptcy risk that is borne by the firm. The findings about this research shows that higher intellectual capital in manufacturing firms registered with the Indonesia Stock Exchange cannot remove agency conflict, but can reduce agency conflict in financing decision. This shows that intellectual capital in Indonesia can lead to more optimal financing decisions and management of bankruptcy risk so that it increases firm value.

The empirical test result in Table 3 shows that dividend policy in manufacturing companies in Indonesia before effect of intellectual capital has a negative effect (β_{43} = - 660.8335) on a firm's value. Dividend policy is a policy for distributing profit to shareholders. La Porta et al. (2000) found that mature firms made more dividend payment than firms in growth phase. A firm which has higher growth opportunities, needs financing for its investment. The negative effect on a firm's value showed that a firm needs internal fund to fund its investment and avoid external fund. Companies avoid external fund because external fund are expensive (Easterbrook, 1994), and when a firm uses debt then a firm bears fixed fee in the form of interest. Rozeff (1992) stated that dividend payment is lower when a firm faces high growth opportunities and a firm that has borne debt with interest pays lower dividend to avoid external fund.

The test result in Table 3 shows that the coefficient of dividend policy before using intellectual capital (β_{43} = - 660.8335) has a negative effect on a firm's value and is significant at 10%. The test result shows that the coefficient of dividend policy after effect of intellectual capital (β_{83} = - 86.1781) has a negative effect on a firm's value and the result is significant at 10%. The test result in table 4 showed that *z*-Clogg (1.64) > *z*-table (1.34). This means that third hypothesis (H_3) of this research could not be rejected that is intellectual capital reduces agency conflict in dividend policy. It means that better intellectual capital consists of human capital and structural capital and it can generate better dividend policy that enhances firm's value. It also means that agency conflict of the firm is reduced.

The explanation about this research is that firm needs to make two important decisions when it wants to make profit in its operation. These are decisions to reinvest the profit and decision to distribute profit in the form of dividend. Indonesia is a growing country It needs to consider many factors so that dividend distribution does not lead to dropping of profitable projects, dividend cuts in future, or selling of new equity. The result shows that higher intellectual capital in manufacturing firms listed on Indonesia Stock Exchange cannot not remove agency conflict, but can reduce agency conflict in dividend policy. This shows that better intellectual capital can manage internal funds better and make dividend policy more optimal to increase firm value.

Table 4 shows that higher intellectual capital can reduce agency conflict through investment decision, financing decision and dividend policy. Better intellectual capital can direct management behavior which decreases agency conflict so that it can increase firm value through investment decision, financing decision, and dividend policy. The research conducted by Tseng and Goo (2005) stated that intellectual capital affects the process of firm value creation. This was also supported by the research conducted by Appuhami (2007), Chen et al. (2005), Shiu (2006), Tan et al. (2007), and Zeghal and Maaloul (2010). They found that intellectual capital has a positive effect on firm value.

Research on the effect of intellectual capital on a firm's value has produced different results. Maditinos et al. (2011) found that intellectual capital did not affect a firm's value creation in Greece. This is due to relatively small companies and the lack of application of modern management. Kamath (2008) who conducted research on pharmaceutical firms in India also found that intellectual capital did not affect a firm value. Firer and Williams (2003) who conducted their research in South Africa supported Maditinos et al. (2011) and Kamath (2008) who found that intellectual capital had no effect on firm's value creation. This is because fixed assets are the main assets that affect a firm's performance. Gan and Saleh (2008) conducted a research in Malaysia and supported Firer and Williams (2003).

Research Implications

The results of this study have implications on the development of agency theory. The research looked at the role of intellectual capital, which is an agent in the agency relationship in reducing agency conflict in key financial decisions, which are investment decisions, financing decisions, and dividend policy.

The results of this study have implications for company policy. It is important for companies to develop intellectual capital in dealing with increasingly intense competition and creating value for the company. This is because a company having intellectual capital is able to make better investment decisions, financing decisions, and dividend policy decisions, which increases the value of the company.

The results of this study have implications for investors. It is important to look at the factors of intellectual capital while investing in or lending to a company. This is because intellectual capital is a very important asset for a company that creates value in the financial decisions which are investment decisions, financing decisions, and dividend policy. The intellectual capital also reduces agency conflict in investment decisions, financing decisions, and dividend policy.

The results of this study have implications for government regulations that need to be assessed for companies listed on the Indonesian Stock Exchange for reporting the performance of intellectual capital in the Indonesian capital market directory (ICMD) and the company's annual report. The results of this study have implications for the government in the form of importance of intellectual capital development in Indonesia. This is because intellectual capital decisions and policies affect shareholder value.

Conclusion

The conclusions that can be drawn are :

(1) The negative effect of investment decisions experience reduction after the influence of intellectual capital. This shows that the intellectual capital reduces agency conflict that occurs with investment decisions.

(2) The negative effect of financing decisions experience reduction after the influence of intellectual capital. This shows that intellectual capital reduces agency conflict that occurs with financing decisions.

(3) The negative effect of dividend policy experience reduction after the influence of intellectual capital. This shows that the intellectual capital reduces agency conflict that occurs because of the dividend policy.

Limitations of the Study

Limitations of this study are as follows:

(1) This study used only one proxy for each variable, that is, *VAIC*™ for intellectual capital, gross capital investment for investment decisions, interest bearing debt for financing decisions, dividend yield for dividend policy, and market capitalization for a firm's value. Further studies using other proxies for measurement are needed to further explain the effects of intellectual capital on agency conflicts and to avoid measurement errors.

(2) This study was limited to manufacturing companies listed on the Indonesia Stock Exchange. Each industry has different characteristics, so different results may be produced in other types of industries.

Scope for Further Research

(1) The study measured intellectual capital using *VAIC* ™. Further research is suggested to use another proxy for measuring intellectual capital.

(2) Further research can use the sample in addition to manufacturing companies to look at the role of intellectual capital in the field of business.

(3) Further research can add factors like corporate governance and risk management to understand the effect of intellectual capital on the process of value creation in another perspective of financial management.

(4) Further research can take a look at the interaction between investment decisions, financing decisions, and dividend policy to know the influence of intellectual capital on a firm's value through the interaction of these three decisions.

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