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TABLE OF CONTENTS

THE ROLE OF INTELLECTUAL CAPITAL DISCLOSURE IN RELATION BETWEEN UNDERWRITER REPUTATION AND UNDER-PRICING: EMPIRICAL EVIDENCES FROM INDONESIA

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ABSTRACT

This study aims to provide empirical evidence about the role of intellectual capital disclosure in reducing cost of capital and mediate relation between reputation of underwriter and underpricing on firm which did IPO in Indonesia. This employ employs purposive sampling producing sample consists of 85 companies that did IPO in Indonesia Stock Exchange in period 2000 to 2014. The data of intellectual capital disclosure index is collected by using content analysis method. This study employs multiple regressions to analyze data. The results indicate that reputation of underwriter, based on volume, has significant association with intellectual capital disclosure. Furthermore, intellectual capital disclosure negatively affect on underpricing level. However, this research could not provide empirical evidence of mediation effect of intellectual capital disclosure in relation between underwriter and underpricing. This research findings indicate that intellectual disclosure extent in IPO prospectus might reduce asymmetric information level and help potential investors in analyzing quality and potency of firm resource in the future. Therefore, investor might give a higher appreciation on stock of firms that have intensive intellectual capital disclosure.

Keywords: *intellectual capital disclosure, underwriter reputation, underpricing.*

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The Role of Intellectual Capital Disclosure in Relation between Underwriter Reputation and Underpricing: Empirical Evidences from Indonesia

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This study aims to provide empirical evidence about the role of intellectual capital disclosure in reducing cost of capital and mediate relation between reputation of underwriter and underpricing on firm which did IPO in Indonesia. This employ employs purposive sampling producing sample consists of 85 companies that did IPO in Indonesia Stock Exchange in period 2000 to 2014. The data of intellectual capital disclosure index is collected by using content analysis method. This study employs multiple regressions to analyze data. The results indicate that reputation of underwriter, based on volume, has significant association with intellectual capital disclosure. Furthermore, intellectual capital disclosure negatively affect on underpricing level. However, this research could not provide empirical evidence of mediation effect of intellectual capital disclosure in relation between underwriter and underpricing. This research findings indicate that intellectual disclosure extent in IPO prospectus might reduce asymmetric information level and help potential investors in analyzing quality and potency of firm resource in the future. Therefore, investor might give a higher appreciation on stock of firms that have intensive intellectual capital disclosure.

Keywords: intellectual capital disclosure, underwriter reputation, underpricing.

1. Introduction

Over the last 20 years, intellectual capital (hereafter IC) phenomena such as definition, recognition, measurement, and disclosure have become interesting research subjects for practitioners and academics. Research about determinant of intellectual capital disclosure in annual financial report has often been done by researchers in developed and developing countries such as Guthrie and Petty (2000), Brennan (2001); Bozzolan *et al.* (2003), Purnomosidhi (2006), White *et al.* (2007), Sihotang and Winata (2008), Bruggen *et al.* (2009); White *et al.* (2010), Taliyang *et al.* (2011), and An *et al.* (2011).

Nevertheless, research in IC disclosure Initial Public Offering (IPO) context is very limited, especially in developing country such as Indonesia. Moreover, in the context of determinant of intellectual capital disclosure extent, few previous research focus on underwriter (e.g.

Chen and Mohan, 2002; Singh and Zahn, 2007; Rashid *et al*., 2012). Most of previous researches concern on ownership structure (Bukh *et al*., 2005; Rimmel *et al*., 2009), ownership retention (Singh and Zahn, 2008; Widarjo and Bandi, 2013), type industry, firm age, firm size (Bukh *et al.,* 2005; Rimmel *et al.,* 2009), and corporate governance (Singh and Zahn, 2008; Rashid *et al*., 2012).

Although, previous researches have tested variable of underwriter reputation (e.g. Chen and Mohan, 2002; Singh and Zahn, 2007; Rashid *et al*., 2012) as determinant of IC disclosure in IPO prospectus, the findings of the that prior studies is mixed. For example, Singh and Zahn (2008) find evidence that underwriter reputation affects IC disclosure IPO prospectus level of firms in Singapore. In contrast, Rashid *et al.* (2012) find opposite result that underwriter reputation is insignificant determinants of IC disclosure in Malaysia. This finding is in line with the research of Chen and Mohan (2002).

Research about IPO in developing country such as Indonesia is interesting because the firm development that did IPO in Indonesia is increasing. Based on the published data by Indonesian Stock Exchange (ISE) in IDX Fact Book mention that over the 10 last years (2005-2014) there are 189 firms which did IPO (IDX Fact Book, 2006-2014). The data show significant increase in five years period. Period 2005-2009 there were 71 firms which did IPO and period 2010-2014 there were 118 firms which did IPO (increase 66%). Moreover, the previous researches show in average, stock price of firms which did IPO in Indonesia are underpricing between 20-30% (Yolana and Martani, 2005; Gumanti and Niagara, 2006; Amin, 2007; Widiyanti and Kusuma, 2013). Therefore, this study aims to extend the previous researches by examining effect of underwriter reputation on IC disclosure and effect of IC disclosure on underpricing level also IC role as mediation variable in relation between underwriter reputation and underpricing.

This research contributes in several ways of IC literature development. First, this research analyzes IC disclosure in IPO prospectus of developing country, so that it can reduce research gap in disclosure media context (annual report and prospectus) and research

location (developed country and developing country) which has been done by previous researchers. Second, this research does not only examine determinant of IC disclosure extent in IPO prospectus but also examine the effect of IC disclosure on underpricing. So, the advantage of IC disclosure in reducing asymmetric information and cost of capital can be seen. Empirical evidence in effect of IC disclosure level on underpricing can be used by firm (issuer) and managing underwriter as consideration for determining IC disclosure extent in prospectus. Third, this research extend the application of signaling theory in initial public offering by examining effect of IC disclosure mediation in relation between underwriter reputation and underpricing. The next sections of this paper explain about the theory and hypothesis, and then discuss about data, sample, and method. The last presents the result, discussion, and conclusion.

2. Literature Review

2.1. Theoretical Background

Stakeholder theory and signaling theory are known as the relevant theory, which can explain causal relation between variables in IC disclosure. Based on stakeholder theory, organizational management are expected to do the important thing by stakeholders and report all the completed activities. Therefore, stakeholders deserve to get information about how its organizational activities affect them (Deegan, 2000; Guthrie et al., 2006). Because stakeholder theory is more concern about organizational accountability than economical and financial performance, so that stakeholders are considered as a part who has power to affect firm's activity (Ullmann, 1985; Deegan, 2000; Guthrie et al., 2006).

Stakeholder theory shows that firm will disclose the information about intellectual, social, and environment performance voluntarily exceeds the required obligation to meet the stakeholder expectation (Ullman, 1985). Stakeholder means a group or individual who can affect or affected by result of firm purpose, for example, stockholder, creditor, employee, customer, supplier, and government (Freeman, 1984; Ullman, 1985).

Stakeholder theory has been used by the previous researchers to explain about determinant of IC disclosure extent (Williams, 2001; White *et al.,* 2010; An *et al*., 2011). Those researches focus on two dimensions of stakeholder theory, namely stakeholder power and economic performance. In IPO context, Bukh *et al.* (2005) and Rimel *et al.* (2009) find that stakeholder determine IC disclosure extent in IPO prospectus.

The second theory in this research is signalling theory. This theory was firstly found by Spence (1973) and developed by Leland and Pyle (1977) in IPO context. In their paper, Leland and Pyle (1977) explain that there is asymmetric information between previous owner (entrepreneur) and potential investor about quality and prospect of offered firm. The previous owner (entrepreneur) has better private information than potential investor. Therefore, for reducing the level of asymmetric information, the former owner will give signal about quality of firm for convincing the potential investor about prospect of offered firm.

Signalling theory has two main characteristics, namely: 1) signal has to be able to be observed and known before IPO, 2) signal has to be difficult to be imitated by firm that has low IPO quality (Certo et al., 2001). The use of signaling theory in the context of IC disclosure has been done by the previous researchers, such as Bukh (2005), Garcia-Meca *et al*. (2005), Oliveira (2007), and Singh and Zahn (2007; 2008). Those research are based on argument that high quality firm will give information about their resource and potency extensively and voluntarily, so that potential investor can easily differentiate between high quality firm and low quality firm. Thus, investor trust about quality and prospect of firm will be increased, so that it will give higher appreciation on firm stock price. Furthermore, Vergauwen and Alem (2005), Rodgers (2007), and An *et al*. (2011) explain that information disclosure about quality and excellence of firm will give many advantages, such as increase image of firm, reducing cost of capital, reducing volatility of stock, and tightening relation with stakeholders.

2.2. Hypotheses Development

2.2.1 Underwriting Reputation and Intellectual Capital Disclosure

The use of underwriter who has high reputation in IPO process can affect positively on investor perception about quality of firm which did an IPO (Certo *et al.*, 2001). Rochyani and Setiawan (2004) say that the use of qualified underwriter will give a signal about firm value to potential investor and guarantee that profit forecast which is made according to certain rules and assumption which is used inn forecasting has rational base. Chen and Mohan (2002) claim that firm which did higher quality IPO will give information signal about quality of initial public offering by using highly reputable underwriter.

In IPO process, underwriter will surely do the best effort so that stock price can be sold on price which appropriate with quality of firm. Based on their experiences and reputations, underwriter surely has information about potential investor needs for decision making in investment. In this case, underwriter has important role in giving consideration or advice to issuer about information which can reduce level of asymmetric information. Bontis (2001), Singh and Zahn (2007), and Rashid *et al.* (2012) argue that information which appropriate with economic development which is based on knowledge and technology is IC. One of media in giving information about IC of firm is through disclosure in IPO prospectus.

Based on signalling theory and previous research results, in higher underwriter reputation, the level of IC disclosure in IPO prospectus is also higher. So that, the first hypothesis of this research is summarized as follows:

H_{1a}: Underwriter reputation, which is based on trading volume, positively effect on IC disclosure extent in IPO prospectus.

H_{1b}: Underwriter reputation, which is based on trading value, positively effect on IC disclosure extent in IPO prospectus.

H_{1c}: Underwriter reputation, which is based on trading frequency, positively effect on IC disclosure extent in IPO prospectus.

2.2.2 Intellectual Capital Disclosure and Underpricing

Underpricing is a phenomena that happen in many countries include in Indonesia. Underpricing is the condition when the stock price in initial offering is lower than in secondary market. The previous researchers argued that underpricing happen cause of asymmetric information between issuer and potential investor (Baron, 1982; Rock, 1986; Grinblatt and Hwang, 1989; Ljungqvist, 2005). One of alternative solution in reducing asymmetric level of information is increasing information disclosure about risk and uncertainty of cash flow in the future (financial and non-financial). Information reporting will be more effective if its information relates with the topic which contributes explicitly with asymmetric information between issuer and investor (Singh and Zahn, 2007). In economic based on technology and knowledge era, intellectual capital has been seen as main factor in firm value creation (Bontis, 2000). Thus, IC disclosure becomes relevant and assessed as main factor in reducing asymmetric information (Bontis, 2001; Singh and Zahn, 2007).

The previous researches provide empirical support about relation between uncertainty of ex ante and underpricing (i.e. Ritter, 1984; Megginson and Weiss, 1991; Beatty and Ritter 1986). Those researches showed that when the number of risk factor is disclosed higher in IPO prospectus, so that average of underpricing is lower. This finding is supported by Jog and McConomy (2003), and also Schrand and Verrecchia (2004) who found negative relation between disclosure level of pre-IPO period and underpricing.

Nevertheless, in IC disclosure context, there are various findings about relation between IC disclosure and underpricing. Research of Singh and Zahn (2007) showed that IC disclosure affect positively on underpricing, but study of Too et al. (2015) gives an evidence that IC disclosure extent in IPO prospectus does not affect significantly on underpricing. Although, there is inconsistency of the previous research result, if it refers to the signaling theory, the disclosure is one of media in reducing level of asymmetric information and helping potential investor in decision making of investment (Welker, 1995; Jog and McConomy, 2003; Schrand and Verrecchia, 2004; Guo *et al*., 2004; Yosano, 2015). When

the level of asymmetric information is reduced, investor can analyze properly about prospect and quality of firm, so that the cost of capital can be reduced (Orens *et al*., 2009; Boujelbene and Affes, 2013). Based on the study of theory and those research results, the second hypothesis in this research is:

H_2: IC disclosure affects negatively on underpricing.

2.2.3 Underwriter Reputation and Underpricing (Indirect Effect)

Underpricing phenomena surely has been to be serious problem in capital market of the world, especially in Initial Public Offering. Since year of 70, there were many prepositions and theories that developed in context of underpricing, such as signaling hypothesis (Logue, 1973), Rock (1986) with winner's course model, information revelation theory (Benveniste and Spindt, 1989), and agency model (Loughran and Ritter, 2004).

One of important factor affects on underpricing level, which becomes researcher's attention, is underwriter. The previous researchers have analyzed relation between underwriter reputation and underpricing (Baron, 1982; Rock, 1986; Beatty and Ritter, 1986; Carter and Manaster, 1990; Chen and Mohan, 2002; Jog and McConomy, 2003; Loughran and Ritter, 2004; Sahoo and Rajib, 2009; Dimovski *et al*., 2011), but it showed various result.

Study of Rock (1986), Carter and Manaster (1990), Chen and Mohan (2002), Jog and McConomy (2003) and Sahoo and Rajib (2009) provide evidence which underwriter reputation affects negatively on underpricing, but Loughran and Ritter (2002;2004) and Dimovski *et al*. (2011) prove that underwriter reputation affect positively on underpricing.

These various research results indicate that there is another factor which is not analyzed by the previous researchers. Based on signaling hypothesis (Logue, 1973, Leland and Pyle, 1977), in IPO process, the use of reputable underwriter is a signal which shows the quality of firm. With the reputation of underwriter, potential investor will see that the firm has good quality and prospect. Because the underwriter who has high reputation will not do the underwriting on the firm with low quality. Moreover, underwriters are considered as parties

who have competent resource in analyzing prospect of firm which are underwritten by them and have better market information than the other parties.

Nevertheless, from the various research results which has been explained on the previous section, so the signal mechanism which is given by firm with highly reputable underwriter actually is not enough for potential investor to believe quality and prospect of firm. Therefore, underwriter should do an action for completing quality of signal by informing about prospect and quality of the offered firm so that asymmetric information level can be reduced.

According to McGuire (2011), information process is a model which is expected to be able to change the attitude and behavior in responding a communication. Information can make the users to do a specific action as a response of information. Information about IC is one of relevant information in showing the quality and prospect of firm in the future. The information can be written in document called IPO prospectus. This prospectus become a media for the firm (management and previous owner) and underwriter in reducing asymmetric information level and it will reduce the cost of capital (Jog and McConomy, 2003; Schrand and Verrecchia, 2004) which is represented by underpricing level in this research. Based on the research results, the third hypothesis in this research is:

H_3: IC disclosure mediates the relation between underwriter reputation and underpricing.

3. Research Method

3.1. Data and Sample

The sample of this research consists of companies that did an IPO in Indonesian Stock Exchange in period 2000-2014. The period is chosen because the discussion of issue of IC has started since the late 1990s and many researchers have started intensively to study since 2000. IPO prospectus data and stock prices are obtained from Capital Market Reference Center of Indonesia Stock Exchange.

3.2. Measurement Variable

3.2.1. Underpricing

Underpricing is a condition when the stock price at initial public offering is lower than IPO price in the secondary market. Based on the research of Singh and Zahn (2007) and Sahoo and Rajib (2009), underpricing is measured by initial return which is calculated with the following formula.

$$UNDP = \frac{Pt1 - Pt0}{Pt0} \; x \; 100\%$$

Where:

UNDP : Initial return,

P_{t1} : Closing price on the first day of trading in the secondary market.

P_{t0} : Initial offering price

3.2.2. Intellectual Capital Disclosure

Consistent with Singh and Zahn (2007; 2008) research intellectual capital disclosure index is classified in six categories which is divided into 81 items, such as follows:

1) Human resource (28 items),
2) Customer (14 items),
3) Information technology (6 items),
4) Process (9 items),
5) Research and Development (9 items),
6) Strategy (15 items).

Furthermore, to measure the level of disclosure which is done by the firm, we analyze the content of prospectus document which is published by firm. Then we give score for each item which is disclosed. Scoring technique is using un-weighted dichotomous scale. One (1) point is given for disclosed item in prospectus and zero (0) point for others. Based on the obtained score, the next step is to calculate the percentage of the disclosure by the following formula.

$$ICD = \frac{\sum_{ij} DItem}{\sum_{ij} ADItem}$$

Where:

ICD : Intellectual capital disclosure level,

Ditem : IC disclosure index item disclosed by IPO firms in its prospectus

ADIitem : Total number of items in the intellectual capital index.

3.2.3. Underwriter Reputation

In this research, the researcher develop the variable measurement of underwriter reputation which is used by Sahoo and Rajib (2009) by rating which is based on 3 indicators, there are: 1) trading volume, 2) trading value, 3) trading frequency. Measurement of these indicators is done by 3 ways as follows:

1. Rating underwriter which is based on 3 indicators (volume, value, and frequency).
2. Providing score or point of underwriter which is based on rating result with terms as follow:
   a. Underwriter with rank 1 is given score 10, rank 2 is given score 9, up to rank 10 with score 1.
   b. Underwriter which has rank more than 10, in range of 11-15 is given score 0.5.
   c. Rank 16-20 is given score or point 0:25.
   d. Underwriter which has rank more than 20 (> 20) is given score 0.125.

   Table 1. shows the scoring techniques were based on result of first step rating.

Table 1
Scoring technique

Ranking	1	2	3	4	5	6	7	8	9	10	11-15	16-20	>20
Point or Score	10	9	8	7	6	5	4	3	2	1	0.5	0.25	0.125

3. Calculating score or value which is obtained by totaling score from each underwriter and then divide with amount of underwriters. This approach is used in anticipating the firm that use more than one underwriter (syndication).

3.2.4. Industry Type

Industry type variable in this research is control variable. Industry type is measured by grouping the companies sample in two categories: 1) high-tech companies, 2) low-tech companies. The categorized hi-tech firm is a firm that operates in the field of Information Technology and Biotechnology, while others are categorized into low-tech companies. This grouping aims to determine the effect of different types of IC industry to disclosure extent in IPO prospectus (Bukh *et al*., 2005; Rimmel *et al*., 2009). Operationalization of industry type variable is to give score 1 for companies which include in the category of hi-tech, and 0 for the others.

3.2.5. Firm Age

Age variable of firm in this research is also a control variable. Age shows the firm's ability to maintain their existence in changing business environment. Firm age shows experience and existence of the firm in the competition, which will reduce the risk of the firm (Bukh et al., 2005). Rimmel *et al. (*2009) and Bukh *et al*. (2005) measured the age of the firm by using the number of years in firm since the establishment until the listing. In this study a firm age is calculated based on the number of days since the firm was established (based on the Deed of establishment) until the effective date in the Indonesian stock exchange. This measurement is considered more representative than the number of years (White *et al*., 2007; Sigh and Zahn 2008).

3.2.6. Firm Size

Firm size shows the capacity of firm in resource ownership (physic and non-physic or finance and non-finance). Firm which has big resource will voluntarily and intensively disclose their IC for showing their prospect and quality (Bozzolan *et al*., 2003; Garcia-Meca *et al*., 2005; Guthrie *et al*., 2006; Oliveira *et al*., 2006; Sonier *et al*., 2008; Ferreira *et al*., 2012; Liao *et al*., 2013; Morariu, 2013).

The previous research showed that there are several measurements of firm size variable such as total assets of number of employees and market capitalization. In this research, firm

size is measured by number of employees. Basic of argumentations are: 1) in IC context, human resource is one of component or element intellectual capital of firm, 2) when IPO firms cannot be known yet how much the market value, so market capitalization cannot be used as measuring instrument in research of IPO.

3.3. Model Development

Hypothesis testing using multiple linear regression analysis. The following is a regression model developed in this study.

a. Regression models to test hypothesis 1

$$ICD = \alpha_0 + \beta_1 UNDW\_VOL + \beta_2 Industry + \beta_3 Age + \beta_4 Size + e \quad (1)$$

$$ICD = \alpha_0 + \beta_1 UNDW\_VALUE + \beta_2 Industry + \beta_3 Age + \beta_4 Size + e \quad (2)$$

$$ICD = \alpha_0 + \beta_1 UNDW\_FREQ + \beta_2 Industry + \beta_3 Age + \beta_4 Size + e \quad (3)$$

b. Regression models to test hypothesis 2

$$UNDP = \alpha_0 + \beta_1 ICD + e \quad (4)$$

c. Regression models to test hypothesis 3 (indirect effect testing)

Indirect effect testing between independent and dependent variable according to Baron and Kenny (1986) must complete these following conditions: 1) independent variable should has a significant effect on the mediator variable (IC disclosure), 2) independent variable should affect the dependent variable (underpricing), and 3) mediator variable should has a significant effect on the dependent variable. The following is the model of third hypothesis testing in this study.

$$ICD = \alpha_0 + \beta_1 UNDW\_VOL + e \quad (5)$$

$$UNDP = \alpha_0 + \beta_1 UNDW\_VOL + e \quad (6)$$

$$UNDP = \alpha_0 + \beta_1 ICD + e \quad (7)$$

$$UNDP = \alpha_0 + \beta_1 UNDW\_VOL + \beta_2 ICD + e \quad (8)$$

$$ICD = \alpha_0 + \beta_1 UNDW\_VALUE + e \quad (9)$$

$$UNDP = \alpha_0 + \beta_1 UNDW\_VALUE + e \quad (10)$$

$$UNDP = \alpha_0 + \beta_1 ICD + e \quad (11)$$

$$UNDP = \alpha_0 + \beta_1 UNDW\_VALUE + \beta_2 ICD + e \quad (12)$$

$$ICD = \alpha_0 + \beta_1 UNDW\_FREQ + e \quad (13)$$

$$UNDP = \alpha_0 + \beta_1 UNDW\_FREQ + e \quad (14)$$

$$UNDP = \alpha_0 + \beta_1 ICD + e \quad (15)$$

$$UNDP = \alpha_0 + \beta_1 UNDW\_FREQ + \beta_2 ICD + e \quad (16)$$

Where :

UNDP : *Underpricing*

ICD : IC disclosure

UNDW_VOL : Underwriter reputation which is based on trading volume

UNDW_VALUE : Underwriter reputation which is based on trading value

UNDW_FREQ : Underwriter reputation which is based on trading frequency

Industry : Industry type

Age : Firm age

Size : Firm size

e : *Error term.*

4. Result and Discussion

4.1. Hypothesis testing

Based on availability and completeness of data, there are 85 companies as sample in this first hypothesis testing. This table 2 is showing the result of first hypothesis testing.

Table 2. Result of Multiple Regression Analysis (Hypothesis 1)

	Model 1		Model 2		Model 3	
Variables	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Constant	-0.039	-0.253	0.045	0.759	-0.043	-0.284
Test Variables						
UNDW_VOL	-0.025	-0.919				
UNDW_VALUE			-0.142	-3.161***		
UNDW_FRQ					-0.053	-1.565
Control Variables						
Industry	-0.007	-0.200	0.002	0.067	-0.011	-0.326
Age	0.003	0.180	-0.007	-0.409	0.003	0.186
Size	0.065	5.202***	0.011	6.015***	0.068	5.430***
Adj. R^2	0.235		0.313		0.250	
F-value	7.464		10.573		8.009	
Sig	0.000		0.000		0.000	
N	85		85		85	

Notes: ***, **, * indicates significance at the 0,01; 0,05; and 0,1 level respectively. UNDW_VOL= underwriter reputation which is based on trading volume; UNDW_VALUE= underwriter reputation which is based on trading value; REP_UNDW_FRQ= underwriter reputation which is based on trading frequency; Industry= industry type; Age= firm age; Size= firm size.

Coefficient regression variable of underwriter reputation, which is based on trading volume, shows a negative and not significant association with IC disclosure. In contrast, variable of underwriter reputation, which is based on trading value, shows a negative and significant association with IC disclosure. However, direction of this variable is opposite with that direction in hypothesis. Thus, the all first hypotheses in this research are not supported.

Although the affect significantly on IC disclosure extent. The significant and a negative direction of association between underwriter reputation variable, which based on trading value, indicate a contradiction with the theory. It seems that reputed underwriter tend to be conservative in determining policy of IC disclosure in prospectus. This condition may be caused by confidence of underwriter with perception of investor on underwriter reputation. Trading value shows the financing capacity of underwriter. This means that underwriter assumes that by big financing image of underwriter, investor will give a positive appreciation on firm which is underwritten by them. Another logic argumentation is consideration of cost and benefit which is obtained in the IPO disclosure context. Although IC is assessed as resource that can create value and competitive advantage for firm (Sonier *at al*., 2008; Bukh et al., 2005; Rashid *et al*., 2012), However, in practice there is no conclusive evidence that IC may increase performance and value of firm in the future (Bontis, 2001; Singh and Zahn,

2007). Thus, underwriters choose to be more conservative in giving advice on policy of IC disclosure to avoid litigation risk and protect their good image. Moreover, the factor of authority and power of underwriter may affect in determining strategic policy of firm which do IPO. In practice, underwriter only have relatively small underwriting portion. Most of firm stocks are underwritten by managing underwriter. Furthermore, most of underwriter does not underwrite the firm independently, but in group or combination of underwriters (syndication). Those condition lead underwriter authority in determining strategic IPO policy relatively weak.

This research result showed the underwriter role in determining the policy of IC disclosure especially in IPO context which is based on the view point of quality and risk. Reputation based on high trading value may affect underwriter in determining policy of information disclosure of IC in IPO prospectus. This research result also shows that firm size is one of determinant of IC disclosure in prospectus. Firms, which have big human resource, actually are more extensive in disclosing their IC in IPO prospectus because human resource is a main factor in value creation and competitive advantage of firm. Moreover, human resource is also one of component in IC disclosure index. Therefore, higher capacity and capability of human resource in firm, higher IC disclosure level in IPO prospectus. Firm, which has big resource, will be more extensive in disclosing their IC voluntarily to show their prospect and quality (Guthrie *et al*., 2006; Oliveira *et al*., 2006; Sonier *et al*., 2008; Taliyang *et al*., 2011; An *et al*., 2011; Ferreira *et al*., 2012).

However, the result of data analysis cannot prove the effect of control variables (industry type and firm age) on the IC disclosure extent . Therefore, it can be said that there is no difference of IC disclosure level between hi-tech industry and low-tech industry. Moreover, there also is no difference of IC disclosure level between old firm and young firm.

Table 3. Result of Multiple Regression Analysis (Hypothesis 2)

	Model 4	
Variable	Coeff.	t-value
Constant	0.344	5.099***
ICD	-0.360	-2.143**
R^2	0.052	
F-value	4.591	
Sig	0.035	
N	85	

Notes: ***, **, * indicates significance at the 0,01; 0,05; and 0,1 level respectively. ICD=intellectual capital disclosure

The result of second hypothesis testing presented in the Table 3 shows that coefficient of regression variable of IC disclosure (ICD) signed negative and significant on the level of 5%. Thus, the second hypothesis in this research is supported. The finding imply that the more extensive IC disclosure in IPO prospectus, the higher trust level of investor on quality and prospect of firm in the future. Therefore, investor gives higher appreciation on firm stock price that has higher intellectual capital. This result also indicates that IC disclosure extent in IPO prospectus may reduce asymmetric information level between issuer and potential investor. The more extensive IC disclosure will make potential investor to obtain enough information on decision making process of investment. This finding is consistent with the research of Beatty and Ritter (1986), Jog and McConomy (2003), and Schrand and Verrechia (2004).

IC disclosure is media for showing the firm quality which is able to be observed by potential investor through IPO prospectus. Moreover, firm which does not have intensive IC disclosure will be difficult to imitate, caused by it needs high cost. Furthermore, there is law consequence inside, because in the prospectus document has been claimed clearly that issuer and managing underwriter are fully responsible on the truth of information in IPO prospectus.

Table 4. Result of Multiple Regression Analysis (Hypothesis 3)

	Model 5		Model 6		Model 7		Model 8	
Variable	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Constant	0.360	14.804***	0.235	6.040***	0.344	5.099***	0.361	5.034***
REP_UNDW_VOL	0.020	0.683	-0.040	-0.868			-0.033	-0.727
ICD					-0.360	-2.143**	-0.351	-2.076**
R^2	0.006		0.009		0.052		0.058	
F-value	0.467		0.753		4.591		2.547	
Sig	0.496		0.388		0.035		0.085	
N	85		85		85		85	

Notes: ***, **, * indicates significance at the 0,01; 0,05; and 0,1 level respectively.

Table 4. (continued)

	Model 9		Model 10		Model 11		Model 12	
Variable	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Constant	0.403	17.205***	0.192	5.121***	0.344	5.099***	0.333	4.244***
REP_UNDW_VALUE	-0.092	-1.800*	0.054	0.657			0.021	0.261
ICD					-0.360	-2.143**	-0.351	-2.040**
R^2	0.038		0.005		0.052		0.053	
F-value	3.241		0.432		4.591		2.304	
Sig	0.075		0.513		0.035		0.106	
N	85		85		85		85	

Notes: ***, **, * indicates significance at the 0,01; 0,05; and 0,1 level respectively.

Table 4. (continued)

	Model 13		Model 14		Model 15		Model 16	
Variable	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Constant	0.360	12.657***	0.262	5.936	0.344	5.099***	0.387	5.214***
REP_UNDW_FRQ	0.020	0.581	-0.082	-1.457			-0.075	-1.357
ICD					-0.360	-2.143**	-0.346	-2.067**
R^2	0.004		0.025		0.052		0.073	
F-value	0.306		2.122		4.591		3.240	
Sig	0.581		0.149		0.035		0.044	
N	85		85		85		85	

Notes: ***, **, * indicates significance at the 0,01; 0,05; and 0,1 level respectively.

On the previous section, the researcher supposes that intellectual capital disclosure has a role as variable which mediate the relation between underwriter reputation and underpricing. The testing result on Table 4 shows that based on criteria of Baron and Kenny (1986) testing on model 5 until 16, so it can be concluded that IC disclosure does not mediate the relation between variable of underwriter reputation and underpricing. Therefore, the third hypothesis in this research is not supported. This research result does not provide support on signaling

theory which claimed that underwriter reputation may reduce underpricing level. This is proven by the result of statistical analysis which shows that underwriter reputation variable does not affect significantly to the underpricing level.

This research result generally shows that disclosure is one of media for conveying information about quality and prospect of firm. The more extensive disclosed information, asymmetric information level will be reduced. Thus, potential investor has enough information in decision making (Welker, 1995; Jog and McConomy, 2003; Schrand and Verrecchia, 2004; Guo *et al*., 2004; Yosano, 2015). This research provides view of underwriter motivation in disclosing IC in IPO prospectus. Moreover, this research also shows the importance of IC information in affecting perception and behavior of investor in decision making (Chan, 1983; Too et al., 2015). Information is able to make the user do a specific action as response from the information (McGuire, 2011; Purnamasari, 2015).

5. Conclusion

The aim of this research is to examine the determinant of IC disclosure and also to examine association of IC disclosure on underpricing. The research result shows that underwriter reputation, which is based on value of trading, is a determinant of IC disclosure extent in IPO prospectus. This research result also shows that there is positive response from potential investor to IC disclosure in IPO prospectus. This is indicated by low level of underpricing of the firm that has more extensive in IC disclosure. Thus, it can be concluded that by extending the information of IC disclosure, it may reduce asymmetric information and has value relevant for potential investor in decision making. Theoretically, this research extends the previous researches in IPO context, mainly in developing country. This research provides evidence of the importance of IC disclosure in reducing asymmetric information and cost of capital in IPO process.

6. Limitation and Recommendations for Future Study

This study has several limitations that to consider to interpret the results. *First*, the number of sample in this research is relatively small. *Second*, this research employs IC disclosure index developed by Singh and Zahn (2008) that might not appropriate for Indonesia environment. The authors proposes suggestions for future studies. First, further research might add number of firms as sample to obtain a higher level of generalization. Second, further research might develop unique IC disclosure index, which is appropriate with accounting standard and characteristic of business in Indonesia. In addition, the next research may also add other determinant variables of IC disclosure extent, which are unique for Indonesian business environment, such as family ownership and foreign ownership.

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