



## Mediating Effect Of Return On Asset On The Effect Between Internal Capital Disclosure And Stock's Return

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### ABSTRACT

This study aims to examine the effect between internal capital disclosure (ICD) and stock return with the mediation of return on asset (ROA) on the banking sector of Southeast Asia. We find that ICD does not have direct correlation with stock returns, ICD has a positive and significant effect with ROA, ROA has a significant and positive effect with stock return, and the mediating variable ROA can mediate effect between ICD on stock return. Bounded rationality or cognitive limitation resulted in investors needing mediation that ease capturing, memorizing, and processing of information in their minds, one of which is to use return on asset as a bridge between internal capital disclosure and stock return. Aside from that, for investors it is very possible to gain big advantage if they can analyze ICD texts and do trading strategy adjustments, because this study stated that there is a positive effect between ICD and ROA that impacts stock return.

## INTRODUCTION

BBVA research stated that ASEAN is on the early stages of digital banking evolution. The growth of internet banking and platform mobile in ASEAN is hindered by the lack of trust in online information sharing, even if financial technology (fintech) in ASEAN is still in its early stages but it is progressing very rapidly. The trend of digital banking in ASEAN overall is increasing from 2014 and it is estimated that the projection in the future will keep on increasing until year 2030 (BBVA research, 2017). In facing the trend of technology growth in the banking industry, the important thing that should be the main focus is the growth of intellectual capital (Radianto, 2011), especially on internal capital in order to fulfill customers' needs and face industry competition.

Disclosure is an information that is delivered to the public through company's financial report (annual report). Disclosure usually consist of two types which are: disclosure that is delivered according to the predetermined minimum standard and is known as mandatory disclosure, and the disclosure of information that exceed the minimum standard (be it financial or non-financial information) is called voluntary disclosure. Voluntary disclosure can consist of strategic information (Product, Competition), financial information (stock price, earning projection) and information outside of financial (CSR, corporate governance) (Ağca and Önder, 2007; Lan et al., 2013; Rezaee and Tuo, 2017). Voluntary disclosure is the ideal medium for banks to convey their intellectual capital advantages in comparison with their competitors, voluntary disclosure related to intellectual capital is called intellectual capital disclosure. The focus of intellectual capital disclosure in this study is emphasized on internal capital that is often called as internal capital disclosure. Topics related to internal capital disclosure are interesting topics, since a few company management emphasized disclosure on internal capital (structural capital) more than external capital and human capital (Maria and Matis, 2014; Schneider and Samkin, 2008), and aside from that the trend of internal capital disclosure in the banking industry shows a significant increasing trend from time to time (Haji, 2012).

One of the goals of disclosure is to give relevant information for investor, a company's information is considered to give a relevant value if the information obtains response from the market in the form of change in stock price or increase the variability in stock returns (Chen et al., 2014; Dumontier and Raffournier, 2002; Kothari, 2001; Luo et al., 2018). Studies on the effect between intellectual capital disclosure and the stock market yielded

various results, on the one hand it shows that intellectual capital disclosure has a direct effect to the market value and also stock abnormal return (Alfraih, 2017; Dumay et al., 2007). On the other hand, other studies mentioned that intellectual capital disclosure in Britain and Australia has a positive effect with the market price but only in industries that are not traditional, and in contrast in Hong Kong and Singapore there is no direct effect between intellectual capital disclosure and market price (Vafaei et al., 2011), in accordance with study by Abeysekera (2011) that showed that there is no impact between intellectual capital disclosure on stock return. The gap between the previous studies became the base as to study further the effect between intellectual capital disclosure (internal capital disclosure) and stock return.

Innovation strategy and internal process performance is a part of intellectual capital related to financial performance (Hariyati and Tjahjadi, 2015), in accordance with study by Abhayawansa and Guthrie (2010) that stated that intellectual capital can be used as main indicator for company's financial performance that will subsequently affect change in stock price. Therefore, the study used financial performance (return on asset) as the mediating variable between intellectual capital disclosure and stock return.

The study on the effect between intellectual capital disclosures on stock return has been previously conducted several times. However, it is still hard to find a study that combines three variables which are intellectual capital disclosure that is specific which are internal capital disclosure, return on asset and stock return. Therefore, it is interesting to not only study the effect between the three variables, but also to see if return on asset can mediate the effect of intellectual capital disclosure on stock return.

### Signaling Theory

Signaling theory is useful to illustrate the behavior of an individual or organization that has access to different information. The information sender has to choose how and what information to communicate (giving signal), and the receiver has to choose how to interpret the signal (Connelly et al., 2011). Signaling theory states that company with better performance is more likely to do voluntary disclosure more easily and readily, because it is seen as a way to easily distinguish their company compared to other companies in the market (Lan et al., 2013), managers have an incentive to communicate their information on the company's favorable future prospects (Lobo, 2017), aside from that manager with bad news will disclose it voluntarily to give signal on his ability to overcome bad situation (Hassanein and Hussainey, 2015; Yekini et al., 2016). In relation to voluntary intellectual capital disclosure, management will only disclose voluntary intellectual capital as long as there is advantage to be gained to reduce information asymmetry in the market (Subhash and Indra, 2009).

### Intellectual capital disclosure (internal capital disclosure)

The definition for intellectual capital in various literature is very broad and therefore it is not easy to correctly define intellectual capital (Abdolmohammad, 2005). According to Stewart (1994), intellectual capital consist of intangible asset in the form of skill, information system and knowledge. In general, components of intellectual capital includes structural/internal capital, human capital and relation/external capital. Structural capital consist of procedure, system and organizational routines. Human capital consist of knowledge, skills and abilities of the human resources. Relational capital consist of resources related to external with customers, supplier and research and development partners (Gaia, 2015). Table 1 is a detailed structure of intellectual capital described by Guthrie et al. (2004), intellectual capital structure in table 1 is used as the base for this study, but intellectual capital used in this study is focused on internal capital. Relating to internal capital, Ahmed Haji and Mubaraq (2012) gave their view on internal capital structure that can be used to complete internal capital in this study, consisting of patent, copyright, trademarks, corporate culture, corporate philosophy, leadership, Information systems (technology), financial relations, innovation, and research & development.

**Table 1. Intellectual capital structure**

Internal capital	External capital	Human capital
1. Intellectual property	7. Brands	14. Employee
2. Management philosophy	8. Customers	15. Education
3. Corporate culture	9. Customer satisfaction	16. Training
4. Management processes	10. Company names	17. Work-related knowledge
5. Information/networking systems	11. Distribution channels	18. Entrepreneurial spirit
6. Financial relations	12. Business collaborations	
	13. Licensing agreements	

From year to year, company annual report is continuously reconstructed to show intellectual capital indicators on company's annual reports, which was initiated in the early 1990s by a number of companies that has high dependency on intellectual capital (Petty et al., 2000). From the perspective of intellectual capital information

user, many users want the company to provide more transparent information and more information related to the intellectual capital of the company (Petty et al., 2008).

Study by Sonnier (2008) stated that high tech companies deliver more information on intellectual capital compared to traditional companies. Banking is an industry that is sensitive to technology and therefore it is very logical that banks that are aware of technological changes will disclose more of its intellectual capital (internal capital) on its annual report, in accordance with study by Haji (2012) that stated that the disclosure of internal capital in banking sector shows a significant and increasing trend.

### **Intellectual capital disclosure (internal capital disclosure)**

Intellectual capital disclosure is useful if the disclosure users respond to intellectual capital disclosure. One of the disclosure users is investors, response from investor on intellectual capital is reflected on the volatility of the stock price which will impact stock return (Wardhana et al., 2017), in accordance with intellectual capital disclosure user's expectation, that believes the more intellectual capital disclosed will give positive impact to the increase in stock price (Petty et al., 2008). Vafaei et al (2011) and Alfraih (2017) found that intellectual capital disclosure has a positive effect with market value or market price. Specifically, Dumay et al (2007) mentioned that stock market gave the most response on the disclosure of internal capital, and therefore the hypothesis used is:

H1: Internal capital disclosure positively influences stock return.

### **Intellectual capital disclosure and Financial Performance**

Signaling theory states that the company with good performance is more likely to disclose voluntary disclosure more easily, so that voluntary disclosure is expected to have positive relation with company's performance and quality (Lan et al., 2013). Study that directly discuss the effect between internal capital disclosure and company's performance is still rare, (Bianchi Martini et al., 2016) did a study on the effect of intellectual capital disclosure on financial performance, but the study emphasize on relation capital disclosure that is also a part of intellectual capital disclosure. The result of the study by Bianchi Martini et al (2016) shows that there is a positive effect between relation capital disclosures on the financial performance of companies in Europe. The results of the studies suggest:

H2: Internal capital disclosure positively influences financial performance (ROA).

### **Financial Performance and Stock Return**

Stock price fluctuation is directly correlated with investor's confidence level on the performance of the company which will subsequently affect stock return (Wardhana et al., 2017). In general, stock price will adjust itself with the fundamental values of the company (Velinov and Chen, 2015), therefore, it can be concluded that the stock price adjust in accordance with the values of the company (company's performance), which the adjustment will then affect stock return. Therefore, the hypothesis used in this study is:

H3: Financial performance (ROA) positively influences with stock return.

### **Mediating Effect of Financial Performance (ROA)**

Nuryaman (2015) stated that profitability is an intervening variable in the effect between intellectual capital and firm value, whereby good financial performance will attract investors' attention to invest on that company, and will then increase stock price and company value. Return on Assets (ROA) is a financial performance that is used as a mediator between internal capital disclosure and stock return. Therefore, the hypothesis used in this study is:

H4: Return on asset mediates the effect between internal capital disclosure and stock return.

### **Mediation and Sobel Test**

Contemporary analyst states that the most important steps to meditation are the effect between independent variable with mediator (path a), and the impact of mediator (path b), whereas when path a and b are controlled then the effect between independent variable with dependent variable (path c) which was initially significant became insignificant does not have to be fulfilled except if full mediation is expected, and the significance of path c does not need to be known when path a and b are still not controlled (Kenny, 2018; Shrout and Bolger, 2002). Sobel test described a significance test for the indirect effect of independent variable on dependent variable through mediating variable.

## RESEARCH METHOD

### Data

The data used in this study is a secondary data which is in the form of a panel data with 105 samples from banks in 4 countries in Southeast Asia (Indonesia, Thailand, Singapore, and Malaysia) during the year 2012-2016. Data source used for internal capital disclosure used content analysis approach on the annual report for year 2012-2016 (log of volume ICD), the data source for return on asset ratio was data from morningstar.com, and the data source for stock return per year was obtained from Yahoo Finance, and the control variable used in this study is firm size which is the log (Total Asset) per year, and the data was processed using Stata.

### Operational definition and measurement

#### 1. Internal capital disclosure

Internal capital disclosure is obtained through content analysis approach on annual report, content analysis is used by giving code on qualitative and quantitative information according to the predetermined category to find presentation pattern and report from the information (Guthrie et al., 2004). Volume or frequency of intellectual capital disclosure is found using the standard (keywords) determined previously (Maaloul and Zéghal, 2015), the keywords used for internal capital disclosure are patent, copyright, trademark, culture, philosophy, technology, innovation, research development, R&D, and information system.

#### 2. Return on asset

Return on assets (ROA) is one of the ratio generally used to measure performance in the banking sector as the main measurement for bank profitability (Ozkan et al., 2017). Formula for return on asset (ROA) used is net profit (loss) for that year divided by average assets. Formula for return on asset is in accordance with the ROA formula in morningstar.com which is the data source for this study.

#### 3. Stock return

Source for *stock returns* consist of *capital gain (loss)* and *dividend yield* (Wardhana et al., 2017), this study uses both in calculating for *stock returns*. According to Hartono (2017) *stock return* formula is as follow:

$$\text{Stock return} = \frac{Pt - Pt-1 + Dt}{Pt-1}$$

Pt is the stock price in the current period, Pt-1 is stock price in the previous period and Dt is the dividend per share during that period.

## RESULTS AND DISCUSSION

### RESULTS

#### Descriptive statistics

In relation to the multicollinearity and heteroscedasticity, table 2 shows that the correlation between variables are not more than 75%, and VIF under 10, and 1/VIF is higher than 0.05 and so it can be concluded that there is no multicollinearity. Heteroscedasticity using the Breusch-Pagan test results in Prob>Chi2 of 0.1513 or above 0.05 and so there is no heteroscedasticity problem. In addition, the autocorrelation test (Wooldridge test) results in Prob>F of 0.3613 or above 0.05 which shows that there is no autocorrelation problem.

**Table 2. Multicollinearity test**

	Stock's Return	ICD	ROA	Firm Size
Stock's return	1.0000			
ICD	-0.0396	1.0000		
ROA	0.2459	0.3929	1.0000	
Firm Size	-0.0307	0.0193	-0.1695	1.0000

Variable	VIF	1/VIF
ROA	1.23	0.814282
ICD	1.19	0.838052
Firm Size	1.04	0.962546
Mean VIF	1.15	

Table 3 shows the descriptive statistics for the main variables in this paper, the maximum value of stock's return of the sampled firms is 0.78, and the minimum is -0.38, this indicates significant variation between banks in Southeast Asia in terms of stock's return. Although the minimum value of stock's return is negative, but the average stock return is 10.33%, this means that although the majority of stock's return is favorable, but there are some unfavorable return.

The maximum value of ICD (log ICD) is 2.43, while the minimum is 0.9, this indicates that variation exists between banks in Southeast Asia in terms of stock return. The maximum value of ROA is 3.66, while the minimum is 0.22, this suggests that significant variation exists between banks in Southeast Asia in terms of ROA. The standard deviation of all research variables is relatively small so that the data of this research are worthy of being tested.

**Table 3. Descriptive statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
Stock's return	105	0.10333	0.23745	-0.38	0.78
ICD	105	1.73229	0.3524	0.9	2.43
ROA (%)	105	1.4721	0.73825	0.22	3.66
Firm Size	105	10.8353	0.33776	10.12	11.52

Data used in this study is panel data and so chow test needs to be conducted to determine the method used, result from the fixed effect regression with 10% significance shows that Prob>F 0.9523 or above 0.10, and therefore it can be concluded that *Fixed effects* is not the best option and that *Pooled least squared* is the best option. Then, the next panel data regression test uses Lagrange Multiplier Test to determine the best option between pooled least squared and random effect, the result of the Lagrange Multiplier Test with 10% significance is Prob>Chibar2 with the value of 1 or above 0.10, and therefore *pooled least squared* is still the best option.

#### Direct influence

Table 4 shows the three direct paths and there is only one path that's rejected. The significance level used is 10%, coefficient ( $\beta$ -value) shows a positive sign which indicates proportional or linear influence, and the negative sign indicates opposite influence.

**Table 4. Direct influence testing result**

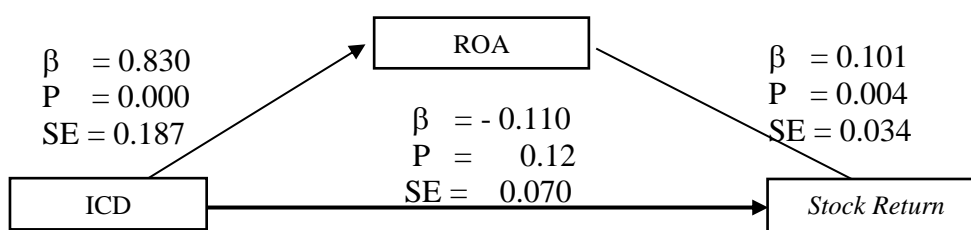
Direct influence	$\beta$	P	Conclusion
ICD $\rightarrow$ Stock return	- 0.026	0.694	Rejected
ICD $\rightarrow$ ROA	0.83	0.000	Accepted
ROA $\rightarrow$ Stock return	0.08	0.012	Accepted

Analysts states that the significance of the independent variable (ICD) path on the dependent variable (stock return) is not required (Kenny, 2018; Shrout and Bolger, 2002), therefore even if the effect between variable ICD on stock return is not significant it is not an obstacle to the mediation effect test.

#### Indirect influence

Figure 1 is a summary of the test on the indirect effect of ICD on stock return which is mediated by the ROA with significance of 10%.

Figure 1. Indirect effect of ICD on *stock return* mediated by ROA.



Sobel test described the indirect influence between independent variable and dependent variable through mediating variable. The formula for sobel test is  $ab$  divided by:

$$\sqrt{b^2Sa^2 + a^2Sb^2}$$

The path from independent variable to mediator is represented as  $a$  and the standard error is  $Sa$ ,  $b$  is the path from mediator to the dependent variable and  $Sb$  is its standard error (Baron and Kenny, 1986; Sobel, 1982). The sobel test calculation result for mediation effect of ROA on the Effect between ICD and stock's return is  $z$  value of 2.47.

## DISCUSSION

### Internal capital disclosure and stock return

Hypothesis 1 (H1) stated that the internal capital disclosure has an influence with stock return, but the study result states that intellectual capital disclosure does not have a significant correlation with  $p$ -value of 0.694 or above 0.10. The result of this study is in accordance with study by Abeysekera (2011) that shows that there is no influence between intellectual capital disclosure on stock return. This study result is also in accordance with theory of bounded rationality that stated that humans are not omniscient, and that humans are limited by the cognitive limitation (Hardman and Macchi, 2003; Wisniewski and Yekini, 2015). Internal capital disclosure narration in the annual report is a long text and is very complex so that patience is needed to study it, except if the investors uses certain software to conduct evaluation, and therefore the market needs more time to process the many and complex information volume, and so mediation is needed to reduce cognitive limitation. It is possible that it will take some time for investors to completely recognize the worth of intellectual capital, and it may take some time for businesses to comprehend the advantages of disclosure.

### Internal capital disclosure and return on asset.

Hypothesis 2 (H2) states that internal capital disclosure has a positive influence with return on asset.  $\beta$ -value of 0.830 means that internal capital disclosure and return on asset has a linear or proportional effect.  $P$ -value of 0.000 or below 0.10 indicates that the effect is significant and therefore H2 is accepted. The result of this study is in accordance with signaling theory whereby the company gave signal through voluntary disclosure to the investor to show that their company is better than other companies (Shehata, 2014), companies with better performance is more likely to do more voluntary disclosure or is more prepared compared to companies with poor performance (Lan et al., 2013). One reason for this effect may be that companies that disclose more about their internal capital are seen as being more transparent and open about their financial performance, which can increase investor confidence and attract more investment. Additionally, internal capital can provide companies with the resources they need to invest in new projects and grow their businesses, which can lead to higher ROA over time.

### Return on asset on stock return.

Hypothesis 3 (H3) states that financial performance (ROA) has a positive effect with stock return, whereby the  $\beta$ -value is 0.101 which means that the higher the return on asset will impact to the increase in stock return, with  $p$ -value of 0.004 so it shows that the effect between ROA and stock return is significant and therefore H3 is accepted. The result of this study is in accordance with researcher's thoughts, which is company that has asset or is developing their asset means that the company has a good opportunity to grow, and so possess the ability to gain profit for the company, and so investor's trust will increase and it will affect the increase of stock return (Wardhana et al., 2017), relation between profit and asset is reflected on ROA that impacts on the increase in stock return. A company with a high ROA may have more cash flow available to pay dividends or reinvest in the business, both of which could also boost stock returns.

### Mediating effect of ROA on internal capital disclosure with stock return

Hypothesis 4 (H4) states that ROA is a mediator of internal capital disclosure on stock return. The mediating effect of ROA is emphasized using sobel test, with  $z$ -value result of 2.47, and because the  $z$  is  $2.47 > 1.65$  with significance of 10%, therefore it proves that ROA can mediate the effect between ICD on stock return, and it can be concluded that H4 is accepted, even if it is not full mediation. In accordance with study by Nuryaman (2015) that states that profitability is an intervening variable on the effect between intellectual capital and firm value, whereby good financial performance will attract investors' attention to invest on that company, and will then increase stock price and company value. Companies that disclose more information about their internal capital are more likely to make sound investments that generate higher returns, which can be seen by the company's ROA and it can affect stock returns. Bounded rationality or human's limitation on knowledge can be really useful in the process of studying and making vital conclusions, and having limited knowledge can result in a person being able to make a simple decision heuristic and powerful (Hardman and Macchi, 2003). In accordance with the result of study

by Khan et al (2017) who found that heuristic has a correlation in the decision to buy stock, and often investors made decision from the information that are available or easy to be absorbed, such as ROA variable.

## CONCLUSION

A few findings that can be concluded in this study is related to the direct influence between variables. Firstly, internal capital disclosure is not directly influenced significantly with stock return, which is due to human's cognitive limitation in receiving or understanding complex narrative information in annual report. Secondly, internal capital disclosure has direct significant positive impact with return on asset, signaling theory states clearly that company's management send out signal through voluntary disclosure to tell the public that their company is better than its competitors. Thirdly, return on asset is positively impact with stock return, it is very clear that companies that can manage their assets well to earn or increase profit, will gain investors' trust, and will impact the increase in stock return. Fourthly, in relation with the mediating effect of return on asset, it is found that return on asset can be used as a mediator between internal capital disclosure on stock return, in that human's cognitive limitation will cause human to make heuristic decision, so that an easy information mediation is needed and is available for decision making which is by the mediation of ROA.

The findings in this study is important for stock market investors, narration on internal capital disclosure gives important information that will affect company's profitability performance (ROA) or sustainability performance (Rezaee and Tuo, 2017), but does not get direct response from stock price. Therefore, it is very possible for investors to gain big advantage if they are able to analyze these texts and adjust trading strategy using said information. As long as texts on the annual reports can be easily converted automatically to a certain value and does not require time or overly high cost, then it will be very good for investors to get themselves used to using the narration information and use appropriate software to get statistical summary that is easy to understand (Wisniewski and Yekini, 2015). For companies, this study is useful in develop easier communication (not complex) and to use the right communication media (such as social media, security, analysis recommendation, YouTube, etc.) to inform internal capital disclosure so that it will be easier for investors to make faster and accurate decisions (heuristic decision making). A company can increase investor confidence and potentially attract more investment, which can lead to higher stock prices and better performance in the stock market.

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