

# Accounting Based Measures M Ilham

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## **Is value-based more associated with stock return than accounting-based measures? The ASEAN-5 evidence**

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### **Abstract**

The purpose of this research is to test the support of value-based measurements about its superiority as a measure of a company's financial performance compared with accounting measurements. This study uses a sample of 25 mining companies in ASEAN-5 during the period 2007-2017. The sample selection by purposive sampling technique is top 5 mining companies based on total assets owned and registered in the exchanges of each ASEAN-5 nation. This study uses panel data and applying ordinary least squares (OLS) regression to test the relative information content and incremental information of value-based measurements (EVA, MVA) and accounting measurements (ROA, ROE, EPS) in explaining stock returns.

The finding is ROA and ROE outperformed EVA and MVA in explaining stock return for mining companies in ASEAN-5, Thailand, and Vietnam. Meanwhile, in Malaysia, Indonesia, and Philippines value-based outperformed accounting-based measures. The incremental information content test for mining companies in ASEAN-5, Malaysia, and Indonesia show that value-based measures make a marginal contribution to information content beyond accounting measures in association with stock return. On the contrary, value-based measures did not have incremental content information in Thailand, Philippines, and Vietnam.

**Keywords:** Stock return, EVA, MVA, ROA, ROE, EPS

### **1. Introduction**

The ultimate goal of a company is to maximise shareholder wealth, so it is crucial for the company to achieve higher profits (Yahaya & Mahmood, 2011). Shareholder's wealth is measured based on the return they receive on their investment (Sharma & Kumar, 2010). In predicting the return obtained by investors, a guide was needed (Syed & Bajwa, 2018), so the question arises of how stock return can be explained and measured accurately (Hall, 2016).

The answer to the best measurements that explain stock return is more needed today because of the global competitiveness (Dobbs et al., 2015). Accounting-based measures give limited information because it is based on a historical number (Sharma & Kumar, 2010). Also, accounting-based measures add financial and accounting distortions (Shil, 2009), which is refers to deviation and divergence

between information reported by financial statements and the reality of the business (Gandevani, 2009). So, accounting-based measures have now been challenged and complemented by value-based measures (Hall, 2016).

Value-based measures can eliminate financial and accounting distortions and have a concept of value creation which is the company's primary goal (Stewart, 1994). Furthermore, Stewart (1994) claims economic value added (EVA) was superior to accounting-based measures in explaining stock return. Stewart's claims supported by several studies in explaining the company's performance (Athanasakos, 2007; Chen & Dodd, 1997; Chmelikova, 2008; Feltham et al., 2004; Irala, 2007; Ismail, 2011; Lee & Kim, 2009; Reddy et al., 2011; Worthington & West, 2004).

Meanwhile in its development there are several studies that reject Stewart's claims (Altaf, 2016; Biddle et al., 1997; Biddle et al., 1999; Chen & Dodd, 1997, 2001; Ismail, 2006; Khan et al., 2016; Kim, 2006; Nakhaci, 2016; Sikarwar & Gupta, 2016). The existence of differences in the results of several studies is a debate between two measurements, whether measurement based on value-added or measurement based on accounting that best explains stock returns?

Information related to EVA is available and promoted in a developed market, in contrast in the emerging market there is a minimal amount of research published (Sharma & Kumar 2010), especially developing countries in the ASEAN region. Kim (2006) states that most studies on EVA are related to the manufacturing industry. Value added is a parameter of the success of a company that can be applied in various other industries (Kim, 2006). Previous studies of EVA have been conducted in several industries such as hospitality and tourism (Kim, 2006; Lee & Kim, 2009), agribusiness (Geyser & Liebenberg, 2003), and the food processing (Chmelikova, 2008).

Based on a report from Flesher et al. (2018) last year, for the next few years, it is estimated that the mining sector is desirable for investors to get a satisfactory return. ASEAN remains the primary objective of FDI flows among developing countries, and one sector destination of FDI was the mining industry (Hwee & Mirza, 2017).

Based on the explanation above, this study aims to prove the claim stated by value-based measures proponent with research questions: 1. Does EVA have a better relative information content of stock return than accounting-based measures in ASEAN-5?; 2. Does MVA have a better relative information content of stock return than accounting-based measures in ASEAN-5?; 3. Whether value-based measures have incremental information content beyond that described by accounting-based measures in explaining the stock returns in ASEAN-5?

## **2. Literature review**

According to Dobbs & Koller (2005), a stock return which is defined as stock price appreciation plus dividend yield over time is the most common approach to measuring stock performance on the market. In predicting stock returns obtained by investors, financial information about the company is needed. This information is essential when assessing stock prices (Syed & Bajwa, 2018). Investors use historical financial information to predict stock returns in the future. Based on these

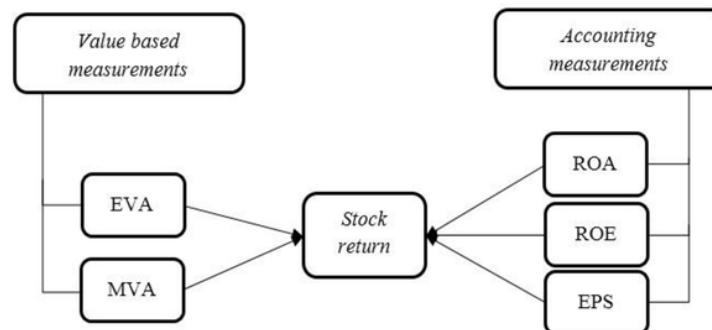
predictions investors make investment strategies to get more return (Fama & French, 1988; Piotroski, 2000; Elleuch, 2009; Mahmoud & Sakr, 2012). Investors try to beat the stock market by predicting future events in the stock exchange (Iqbal et al., 2013). Good or bad company performance can be seen from the company's financial information which is analysed using a measuring instrument such as profitability ratios of return on assets (ROA), return on equity (ROE), earnings per share (EPS) which is an accounting-based measure. The results of these analyses can affect market expectations that may affect stock prices in the market (Deelder et al., 2008). If the profitability ratio is high, market expectations of the company are high, causing the market price in stocks to rise which then indicates that the stock returns obtained are also getting bigger. In addition to accounting measurements, company performance measures can be assessed by value creation, known as value-based measurements such as economic value added (EVA) and market value added (MVA).

G. Bennett Stewart from Stem Steward & Co. in 1991 popularised the concept of value-based measurements (Stewart, 1994). The concept of EVA is a formulation put forward by Alfred Marshal in 1890, namely the cost of invested capital is also deducted from profits to estimate the real or economic profits of a company (Kyriazis & Anastassis, 2007). EVA measures the net profitability of capital costs and an estimate of actual profit or when the amount of income exceeds or does not meet the minimum required level so that shareholders and creditors can earn by investing in other equivalent securities. (Reddy et al., 2011).

Lehn & Makhija (1996) stated that MVA efficiently measures the stock market valuation of the NPV value of the investment project in the past and expected by the company. MVA reflects the cumulative wealth created for shareholders for the existence of companies outside the capital used (Yook & McCabe, 2001). MVA is information to the market, about how active company managers have used scarce resources under their control and how well management has positioned the company (Cheng et al., 2007)

The following figure is the theoretical framework of this research:

**Figure I.**  
***Theoretical Framework***



In its development, the academic literature about which performance measures between value-based and accounting-based are best in explaining stock returns, several studies exist.

### 2.1. Studies supporting the superiority of EVA

Several previous studies that comparable EVA to accounting measurements have been done to prove Stewart's claim that EVA is better able to explain stock returns than other measurements including accounting measurements. Stewart's claims are supported by research conducted by Chen & Dodd (1997) who studied 605 American companies during the period 1983-1992 found that the correlation between EVA and stock returns is imperfect and EVA provides relatively more information than profit accounting in terms of the strength of associations with stock returns. Furthermore, Feltham et al. (2004) which examined 694 American corporations (1983-1994), 386 Canadian firms (1991-1998), and 2,608 observations of American corporations (1993-1995) found that EVA had better strength than earnings in explaining market-adjusted stock return (MAR). Other findings are EVA, and residual income (RI) outperform earnings and cash flow from operating activities (CFO), but in Canadian companies, the performance of RI is awful. Athanassakos (2007) who studied 300 Canadian companies in late 1998 found that value-based management (VBM) was widely used as well as companies using VBM had better stock performance than companies that did not use VBM. Furthermore, EVA superiority proponents claims are supported by many other studies (Chmelikova, 2008; Irala, 2007; I. Ismail, 2011, 2013; Reddy et al., 2011; Sikarwar & Gupta, 2016; Worthington & West, 2004).

### 2.2. Studies rejecting superiority of EVA

Several studies do not support Stewart's claim, like research conducted by Ismail (2006) who researched companies in the UK with a total of 2,252 observations, found that EVA lacked better relative information content than accounting earnings in explaining stock returns. Maditinos et al. (2006) who examined 163 companies listed on the Athens Stock Exchange during the period 1995-2001 also found EVA was not superior even EPS dominated EVA in explaining stock returns. In its development, studies that did not support Stewart's claim have been carried out. Furthermore, a study which conducted in the emerging market by Kumar & Sharma (2011a) who researched 97 non-financial companies listed in Bombay Stock Exchange from the year 2000 to 2008, found that EVA was not superior to traditional accounting. Other studies that found superiority of accounting-based measures than EVA was conducted by many researchers (Altaf, 2016; Arabsalehi & Mahmoodi, 2012; Biddle et al., 1997; Biddle et al., 1999; Chen & Dodd, 2001; Erasmus, 2008; Hajiabbasi et al., 2012; Hall, 2016; Hamidah, 2015; Khan et al., 2012; Khan et al., 2016; Kim, 2006; Satish Kumar, 2013; Satish Kumar & Sharma, 2011b; Lee & Kim, 2009; Maditinos et al., 2009; Nakhaei & Hamid, 2013; Palliam, 2006; Parvaei & Farhadi, 2013; Peixoto, 2002; Ray, 2014; Samadiyan et al., 2013; Tsuji, 2006; Wet, 2005; Yang et al., 2011; Yaqub et al., 2015).

### 2.3. Studies supporting the superiority of MVA

Beside EVA that investors use to measure the company's performance based on creating value is market value added (MVA) which is also already widely used today (Habibollah Nakhaei, 2016). Lehn & Makhija (1996) stated that MVA is significantly positive to stock price performance. Increasing MVA increases stock prices so that MVA is a good measure of performance. This statement is supported by research conducted by Lee & Kim (2009) that MVA has a positive MAR explanatory power and can explain MAR better than accounting measurements such as CFO, ROA, and ROE.

### 2.4. Studies rejecting superiority of MVA

Research conducted by Hajiabbasi et al. (2012) on the companies listed in Tehran Stock Exchange found that MVA did not have information in explaining stock returns. Furthermore, Arabsalehi & Mahmoodi (2012) who researched 115 companies listed on the Tehran Stock Exchange during the period 2001-2008 found that MVA is not better than accounting measurements in explaining stock returns and accounting measurements have better informational content than value-based measures in explaining stock returns. Other studies that are rejecting the superiority of MVA conducted by Muhammad & Scrimgeour (2014) and Nakhaei (2016).

### 2.5. Incremental Information content in explaining stock return provided by value-based measures

Some previous studies examined how much additional information content provided by value-based measurements and accounting measurements in explaining stock returns and obtained results that value-based measures contain incremental information that can explain stock returns beyond those described by accounting-based measures. Biddle et al. (1997) who researched American companies in 1988 until 1997 found that EVA or RI slightly explained the stock return beyond those described by earnings. Furthermore, several studies support the findings was conducted too (Arabsalehi & Mahmoodi, 2012; Biddle et al., 1999; Erasmus, 2008; Ismail, 2006; Khan et al., 2016; Kim, 2006; Kumar & Sharma, 2011a; Nakhaei, 2016; Parvaei & Farhadi, 2013; Peixoto, 2002; Sikarwar & Gupta, 2016)

## 3. Research Methods

### 3.1. Sample selection

This research is quantitative research using panel data. The sample was chosen by purposive sampling technique which took 25 mining companies listed on the Indonesia, Malaysia, Thailand, Philippines and Vietnam (ASEAN-5) exchanges during the 2007-2017 period. Each country selected the top 5 mining companies based on total assets. Research data was taken through Bloomberg Terminal

### 3.2. Variable definition

This study has the objective of examines the association of value-based measures (EVA, MVA) and accounting-based measures (ROA, ROE, EPS) with the stock return of the companies. Stock return as a dependent variable used total shareholder return (TSR) formula as a proxy, and for the independent variable, this study used EVA, MVA, ROA, ROE, and EPS. The calculation of variables based on Bloomberg, for each variable, is as follows:

**Table I.**  
**Dependent and Independent Variables**

Variable	Symbol used	Formula
Stock return	SR	$\frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$
Economic value added	EVA	$NOPAT - [Invested\ Capital \times WACC]$
Market value added	MVA	Company's Market Value – Invested Capital
Return on assets	ROA	$\frac{Net\ Income}{Total\ assets}$
Return on equity	ROE	$\frac{Net\ Income}{Shareholder's\ equity}$
Earnings per share	EPS	$\frac{Net\ Income - Dividen\ on\ preferred\ stock}{Average\ outstanding\ shares}$

### 3.3. Hypotheses of the study

The objective of this paper is to examine the claim of value-based proponents and provide evidence which betters between two measurements, whether measurement based on value-added or measurement based on accounting. Based on research questions, the following hypotheses are formulated:

- Hypothesis 1 (H<sub>1</sub>) : EVA has a better relative information content of stock return than accounting-based measures in ASEAN-5
- Hypothesis 2 (H<sub>2</sub>) : MVA has a better relative information content of stock return than accounting-based measures in ASEAN-5
- Hypothesis 3 (H<sub>3</sub>) : Value-based measures have incremental information content beyond that described by accounting-based measures in explaining the stock returns in ASEAN-5

### 3.4. Model Specification

This research method is based on a similar method carried out by several previous studies that are used as a reference (Kim, 2006; Irala, 2007; Kumar & Sharma, 2011a; Khan et al., 2016; Sikarwar & Gupta, 2016). For H<sub>1</sub> and H<sub>2</sub> testing in this study, the researcher develops five simple regression models for each independent variable (EVA, MVA, ROA, ROE, and EPS) on stock returns. The researcher developed five ordinary least squares (OLS) regression models to compare the relative strength of each independent variable to the dependent variable so that the results of the first hypothesis (H<sub>1</sub>) and the second hypothesis (H<sub>2</sub>) can be known. The simple regression models used is as follows:

$$SR_{it} = \beta_0 + \beta_1 EVA_{it} + \varepsilon_{it} \quad (1)$$

$$SR_{it} = \beta_0 + \beta_1 MVA_{it} + \varepsilon_{it} \quad (2)$$

$$SR_{it} = \beta_0 + \beta_1 ROA_{it} + \varepsilon_{it} \quad (3)$$

$$SR_{it} = \beta_0 + \beta_1 ROE_{it} + \varepsilon_{it} \quad (4)$$

$$SR_{it} = \beta_0 + \beta_1 EPS_{it} + \varepsilon_{it} \quad (5)$$

All outputs from simple regression for each independent variable to the dependent variable are seen by adjusted R<sup>2</sup> value. How to determine the H<sub>1</sub> and H<sub>2</sub> testing can be seen in the following table:

**Table II.**  
**Method for Determining H<sub>1</sub> and H<sub>2</sub> testing**

Hypothesis Test	Value-Based Measurements	Provision Value of Adjusted R <sup>2</sup>	Accounting Measurements	Conclusion
H <sub>1</sub> testing	EVA	>	ROA, ROE, EPS	H <sub>0</sub> : accepted H <sub>1</sub> : rejected
H <sub>2</sub> testing	MVA	>	ROA, ROE, EPS	H <sub>0</sub> : accepted H <sub>2</sub> : rejected

Furthermore, to test the third hypothesis (H<sub>3</sub>) which examines incremental information of stock return provided by value-based measurements outside of the information described by accounting measurements using two separate multiple regression models called model 6 and model 7. Model 6 includes all independent variables (EVA, MVA, ROA, ROE, EPS). While model 7 only includes three independent variables (ROA, ROE, EPS) which are accounting measurements. The two multiple regression equations used are as follows:



$$SR_{it} = \beta_0 + \beta_1 EVA_{it} + \beta_2 MVA_{it} + \beta_3 ROA_{it} + \beta_4 ROE_{it} + \beta_5 EPS_{it} + \varepsilon_{it} \quad (6)$$

$$SR_{it} = \beta_0 + \beta_3 ROA_{it} + \beta_4 ROE_{it} + \beta_5 EPS_{it} + \varepsilon_{it} \quad (7)$$

The output of both multiple regression models above is seen for each adjusted  $R^2$  value. Then see the difference of the adjusted value of  $R^2$  on model 7 to the adjusted value of  $R^2$  model 6. If the result is increased, then it can be concluded that value-based measurements (EVA & MVA) have additional content return outside stock which is explained by accounting measurements (ROA, ROE, EPS), whereas if there is a decline then apply the opposite statement.

#### 4. Empirical Result and Analysis

##### 4.1. Descriptive statistics

**Table III.**  
**Descriptive Statistics of Dependent Variables and Independent Variables**

Variable	Obs.	Mean	Median	Std. Dev.	Minimum	Maximum
SR	275	29.98756	11.4055	92.98679	-82.94934	787.0986
EVA	275	-33.63828	7.997071	355.6165	-2512.658	1214.9
MVA	275	1.137411	0.272254	2.883517	-6.910883	18.10958
ROA	275	7.985675	6.812096	9.773357	-32.61254	56.12777
ROE	275	14.49366	14.84272	26.72533	-249.86	103.5916
EPS	275	0.112518	0.036	0.232966	-1.210513	1.378553

Based on table III above EVA which has a negative mean value (-33.63828) indicates that most of the companies that are used as research samples eliminate the value of shareholder's wealth. The low mean and median values of the EVA variable indicate that in the long term the company is unable to get a return that exceeds the cost of capital because of market competition so that the company cannot get enormous growth over a long period.

All variables have a standard deviation that is greater than the mean value held so that there is a data deviation or significant variance caused by a sample of companies that have different characteristics and are found in every five different countries. Also, the data was taken from 2007, a year later a subprime mortgage crisis occurred in 2008. The smallest range owned by EPS (0.16804) indicates that mining companies in ASEAN-5 as a whole have stable EPS.

##### 4.2. Relative information test

Testing of information content relative by performing simple regression separate every independent variable to dependent variable using estimation of ordinary least squares (OLS) approach based on equation (1) - (5). At the level of  $\alpha = 5\%$ .

**Table IV.**  
**Correlation Matrix**

	SR	EVA	MVA	ROA	ROE	EPS
SR	1	0.102	0.115	0.324	0.171	0.091
EVA	0.102	1	0.250*	0.283*	0.196*	0.018*
MVA	0.115	0.250*	1	0.270*	0.173*	0.435*
ROA	0.324*	0.283*	0.270*	1	0.782*	0.268*
ROE	0.171*	0.196*	0.173*	0.782*	1	0.346*
EPS	0.091	0.018	0.435*	0.268*	0.346*	1

**Note:** Correlation is significant at the \*0.01 level

**Table V.**  
**Relative Information Content Test Results in ASEAN-5**

	Adjusted R <sup>2</sup> (%)				
	Model 1	Model 2	Model 3	Model 4	Model 5
	(EVA)	(MVA)	(ROA)	(ROE)	(EPS)
<b>ASEAN-5</b>	0.69%	0.96%	10.16%	2.57%	-0.12%
<b>Indonesia</b>	8.81%	17.40%	12.91%	13.87%	7.50%
<b>Malaysia</b>	17.59%	-0.88%	13.91%	9.91%	7.03%
<b>Thailand</b>	1.27%	6.95%	18.65%	17.27%	-1%
<b>Phillipines</b>	-1.77%	2.75%	0.17%	0.43%	-1.64%
<b>Vietnam</b>	9.11%	5.21%	11.28%	5.15%	0.42%

In table V which is the result of testing the first hypothesis (H<sub>1</sub>) and the second hypothesis (H<sub>2</sub>), for ASEAN-5 the information content of explanatory variables to the stock return of the largest is ROA (10.16%), ROE (2.57%), MVA (0.96%), EVA (0.69%), and EPS (-0.12%). For adjusted R<sup>2</sup>, the negative value is considered to be 0. The negative EPS shows that the ratio is not considered in assessing the mining company's shares in ASEAN-5, which is an indication that investors do not consider EPS as an important factor as a measure of company performance. Based on these results, it can be concluded that ROA and ROE were superior to EVA and this also applies in Thailand and Vietnam.

The finding supports previous research (Altaf, 2016; Arabsalehi & Mahmoodi, 2012; Biddle et al., 1997; Biddle et al., 1999; Chen & Dodd, 2001; Erasmus, 2008; Ismail, 2006; Hajiabbasi et al., 2012; Hall, 2016; Hamidah, 2015;

Khan et al., 2012; Khan et al., 2016; Kim, 2006; Satish Kumar, 2013; Satish Kumar & Sharma, 2011a, 2011b; Lee & Kim, 2009; Maditinos et al., 2006, 2009; Nakhai & Hamid, 2013; Palliam, 2006; Parvaei & Farhadi, 2013; Peixoto, 2002; Ray, 2014; Samadiyan et al., 2013; Tsuji, 2006; Wet, 2005; Yang et al., 2011; Yaqub et al., 2015) which states that EVA is not able to defeat accounting measurements. The results are not following value-based proponents that EVA superior to other firm performance measures, so the first hypothesis ( $H_1$ ) in this study is rejected.

Also, MVA also has a lower relative information content of stock returns than ROA and ROE. This finding also supports previous research (Arabsalehi & Mahmoodi, 2012; Hajiabbasi et al., 2012; Muhammad & Scrimgeour, 2014; Habibollah Nakhai, 2016), so the second hypothesis ( $H_2$ ) is rejected.

Furthermore, in Malaysia it turns out that EVA is superior to other independent variables, so the findings on the Malaysian stock exchange support several previous studies (Athanasakos, 2007; Chen & Dodd, 1997; Chmelikova, 2008; Feltham et al., 2004; Irala, 2007; Ismail, 2011, 2013; Reddy et al., 2011; Sikarwar & Gupta, 2016; Worthington & West, 2004) which supports accounting-based proponents claims. Meanwhile, MVA has the largest adjusted  $R^2$  in Indonesia and Philippines which were 17.40% and 2.75% respectively. This finding support Lee & Kim (2009) that states MVA can better explain market adjusted return (MAR) than accounting-based measures.

#### 4.3. Incremental information content test

Testing additional information content by multiple regression using the estimation of ordinary least squares (OLS) approaches based on equations (6) and (7). At the level of  $\alpha = 5\%$ , the empirical results of the  $H_3$  test are as follows:

**Table VI.**  
**Incremental Information Content Test Result**

	<b>Model 7</b>	<b>Model 6</b>	<b>Difference</b>
	<b>Adj. <math>R^2</math> (%)</b>	<b>Adj. <math>R^2</math> (%)</b>	
<b>ASEAN-5</b>	9.58%	11.06%	1.48% (increased)
<b>Indonesia</b>	10.38%	31.30%	20.92% (increased)
<b>Malaysia</b>	25.97%	62.97%	37% (increased)
<b>Thailand</b>	15.69%	14.31%	1.38% (decreased)
<b>Phillipines</b>	8.65%	7.90%	0.75% (decreased)
<b>Vietnam</b>	7.34%	6.13%	1.21% (decreased)

Based on Table VI shows that in ASEAN-5 value-based measures (EVA & MVA) adds an adjusted  $R^2$  of 1.48%. Although small in value, it was significant and it can be concluded that value-based measures have additional information content beyond what has been described accounting-based measures (ROA, ROE, EPS) so that the third hypothesis ( $H_3$ ) is accepted.

This finding is in accordance with previous studies (Arabsalehi & Mahmoodi, 2012; Biddle et al., 1999; Erasmus, 2008; Ismail, 2006; Khan et al., 2016; Kim, 2006; Kumar & Sharma, 2011a; Nakhaei, 2016; Parvaei & Farhadi, 2013; Peixoto, 2002; Sikarwar & Gupta, 2016). In Indonesia and Malaysia, the value-based measures also provide additional content on stock returns. On the contrary, value-based measures (EVA, MVA) do not have incremental information content in explaining stock return in Thailand, Philippines and Vietnam.

## 5. Summary and Conclusion

Based on the empirical result of this research, it can be concluded that ROA and ROE are superior to EVA and MVA in having relative information content to stock return in ASEAN-5 mining companies. Also, it applies to Thailand and Vietnam Stock Exchanges. However, on the Indonesia and Philippines Exchanges, it turns out that MVA has the most excellent information content, while in the Malaysia Exchange which is the best performance measure in explaining stock returns is EVA.

Furthermore, EVA and MVA turned out to have additional information content in explaining stock returns at ASEAN-5 mining companies. Meanwhile, in Indonesia and Malaysia, both of value-based measures (EVA, MVA) can provide significant incremental information content in explaining stock returns beyond those described by ROA, ROE, and EPS. On the contrary, in Thailand, Philippines and Vietnam it turns out that EVA and MVA were unable to provide additional information content. This finding is new from other related studies that value-based measures do not provide incremental information content in explaining stock return.

### 5.1. Theoretical Implication

The empirical results of this study that examined the mining companies in ASEAN-5 denied Stewart's claim that EVA is superior and superior to other company performance measures. However, on the Bursa Malaysia, it turns out that Stewart's claim is proven that EVA is superior to ROA, ROE, and EPS. On the Indonesia and Philippines Exchanges it turns out that MVA is the best performance measure in explaining stock returns in accordance with VBM supporting statements and research conducted by Lehn & Makhija (1996) that MVA is a useful performance measure that contains information about the quality of strategic decisions and is presented as a signal of a change in strategy.

### 5.2. Managerial Implication

Based on the findings in this study that EPS has a negative value adjusted  $R^2$  which indicates that EPS is not a good ratio to determine the performance of mining companies in ASEAN-5. Also, it applies to the Exchanges in Thailand and Philippines. ROA is a ratio to determine good company performance on ASEAN-

5, Thailand, and Vietnam. Accounting measurement information content in explaining better stock returns to value-based measurements occurred in ASEAN-5, Thailand and Vietnam which showed that investors invest based on the company's financial statements published. For Indonesia, Malaysia and Philippines Exchanges shows that EVA and MVA are the most performance measures. Especially for the Bursa Malaysia which has best EVA with highest adjusted  $R^2$  value, it is shown that in predicting stock returns for mining companies in Malaysia it is necessary to pay attention to the cost of capital.

Incremental information content testing for stock returns provided by value-based measurements is found in ASEAN-5, Indonesia and Malaysia. It indicates that the need for investors or management to use accounting measurement performance measures combined with value-based measurements in predicting stock returns in mining companies resulting in better investment decisions. Meanwhile, for mining companies in Thailand, Philippines and Vietnam Exchanges shows that EVA and MVA do not provide additional content related to stock returns. So that it can be concluded that to invest in mining companies in these countries, measures of value-based measurement (EVA & MVA) performance are ignored

### 5.3. Limitation

The minimal sample of mining companies under study is less likely to reflect the overall mining company in the ASEAN region. Also, mining companies with mining products are more influenced by external factors such as demand and supply of mining products, technological renewal, scarcity, and global political situation. So that the data processed has a significant variance and lead to the results of research into bias. Furthermore total shareholder return (TSR) as a proxy of stock return only good to measure performance in short-time.

### 5.4. Suggestion

For further research is suggested to increase the number of samples as well as selecting the company as a sample is a company engaged in other sectors. Furthermore, future research is expected to use a different stock return proxy. In this study, the proxy used for stock returns is the total shareholder return (TSR). TSR has certain limits to measure performance. TSR is only good for measuring performance in the short-term, so to measure the performance of the company in the long-term which is a good investment, it is advisable to use other proxies such as market value added (MVA) or market value to capital ratio (Dobbs & Koller, 2005). For independent variables, the next researcher should use a value-based measurement in addition to EVA and MVA. Likewise with traditional performance measurements which also have other ratios besides profitability ratios to measure company performance.

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