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Does EVA Have More Information Content with Stock Return than Profitability Ratios? Evidence from Malaysia

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ABSTRACT

The purpose of this study is to provide an answer to the claim made by Stern Stewart and company that Economic Value Added (EVA) has a superior metric to traditional accounting measures in explaining the stock return of a firm. This study is concerned about the relative and incremental information content of EVA and profitability ratios like return on assets (ROA), return on equity (ROE), and return on sales (ROS). It covers 395 non-financial companies listed on the main market of Bursa Malaysia from 2006 to 2015.

The panel data regression is used to test the hypotheses, empirically. The findings did not support the claim of EVA proponents concerning its superiority over profitability ratios. The relative information content test revealed that profitability ratios namely ROA, ROE, and ROS outperform EVA in their relationship with the stock return. Furthermore, the incremental information content test also indicated that EVA has minimal incremental information content with the stock return compared to ROA, ROE, and ROS. In summary, the findings show that EVA is a valuable performance measure in the Malaysian context. Therefore, it is recommended to Malaysian firms to use EVA with profitability ratios in the firm's performance evaluation.

Keywords: Economic value added, accounting measures, stock return, relative and incremental information content

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1.Introduction

Maximizing shareholder value is the main purpose of each company. In this regard, evaluating the performance of companies is vital in ensuring and achieving optimal allocation of limited resources (Nakhaei. *et al.*, 2012). Besides, it is necessary to use suitable criteria for evaluating the performance of a company or shareholders' value as propelling value of company toward real value will result in proper fund allocation (Jahankhani and Zariffard, 1995). In other words, shareholder's wealth maximization is the main purpose of each company and performance evaluation of companies is the most important subject that is considered by investors, managers, and government. Recently, the activity of stockholders has reached unparalleled levels and led to raised needs on companies to maximize stockholder (Bacidore *et al.*, 1997).

According to Baum et al. (2004), many companies use traditional criteria for measuring their performance, such as earning per share (EPS), return on investment (ROI), free cash flow (FCF), retained earnings (RE), and stock price (SP). Based on Worthington and West (2004), traditional performance measures, as a basis for management performance evaluation, have some disadvantages. Performance evaluation and firm's assessment are not consistent with current realities. According to Hirsch (2000), while the traditional criteria are important tools for evaluating the operational and financial performance of the companies, the firm-changing environment needs to use the new criteria. Accordingly, Brigham and Ehrhardt (2005) said, "economic value added is an estimate of a business's true economic profit for the year, and it differs sharply from accounting profit. EVA represents the residual income that remains after the cost of all capital, including equity capital, has been deducted, whereas accounting profit is determined without imposing a charge for equity capital (P, 68)". Economic value added (EVA) can be used to achieve company objectives, capital budgeting, performance evaluation, and calculating the remuneration of managers (Stewart, 1991).

Accounting rate of return always been criticized for its incapability to calculate economic profitability (Fisher and McGowan, 1983). EVA as a concept of economic profit is the result of adjustments to Generally Accepted Accounting Principles (GAAP) based accounting advocated by Stern Stewart and Company in 1991, in order to produce a more economically meaningful version of residual income. Moreover, the claim that EVA is the main driver for shareholder value has been empirically tested by a number of US studies, giving rather mixed results. A number of these studies report either poor or no statistical relation between EVA and stock return, or between EVA and market value (Ismail 2006). Moreover, Biddle et al. (1997), reported that earnings before interest and tax (EBIT) dominate residual income (RI), which in turn dominate EVA in explaining stock return. Similar results were found by Chen and Dodd (2001).

Hence, many of the previous studies have tried to tests both relative and incremental information contents of EVA, including inter alia (Kim, 2006; Nakhaei, 2016; Nakhaei *et al.*, 2016; O'Byrne, 1997; Ramana, 2005; Sharma and Kumar 2012). Worthington and West (2004) investigated whether or not EVA is more closely connected with stock return than residual income (RI), earning, and operational cash flow (OCF). Relative information content tests revealed stock returns to be more associated with EVA than residual income (RI), Earning, and operational cash flow (OCF), respectively. Likewise, Kumar and Sharma (2011) studied the association between EVA and accounting earnings with the market value in Indian Companies. Relative information content test disclosed that net operational profit after tax (NOPAT), OCF surpass EVA in explanation of the market value of Indian firms. Incremental information content test revealed that EVA creates a minor contribution to information content further than

conventional performance measures (NOPAT, EPS, RONW, and OCF).

Similarly, the basic purpose of this study is to provide experimental evidence on the relative superiority of EVA over profitability ratios such as ROA, ROE and ROS particularly in Malaysian business environment. To the best of our knowledge, this study is the first of its kind in the Malaysian context. The main incentive behind this study was to provide an internal standpoint on the phenomenon under study and to answer the continuous discussion about the superiority of EVA over profitability ratios. Another reason is that management often tends to manipulate the financial results in order to suit their interests. This is due to the very nature of how accounting measures of performance are calculated and their reliance on the accounting data, which in turn depends on the accounting policies implemented by the firm, this helps the management overstate or understate the firm's results (Brown *et al.*, 2011).

In addition, Abdullah (2004) discussed that Malaysian companies in order to measure the performance of firms have used the accounting ratios. However, these ratios are not able to calculate and capture the companies' value that is generated over time. Moreover, Ismail (2011b) supported the need for new financial criteria in Malaysia. He claimed that since the 1997-1998 economic crises, Malaysia is suffering for the most appropriate performance criteria that help the investors in estimating value created on their investment. According to Sharma and Kumar (2010), only 23 papers in Brazil, Russia, Indonesia, New Zealand and Malaysia are published over the last ten years. This study shows that few studies managed on EVA in Malaysia. Thus, this study attempts to examine the relative and incremental information content of economic value added (EVA) and profitability ratios (ROA, ROE, and ROS) with stock return in Bursa Malaysia.

Here, relative information content means which measure has greater or superior information content than the other one. Whereas incremental information content refers to a situation where it tests whether one performance measure (accounting or economic) provides more information content than the other measure or not (Biddle *et al.*, 1995; Mohanty and Pattnaik, 2013). The remainder of the paper is organized as follows: The second section presents a summary review of prior literature. Research variables are reported in the third section. The fourth section presents the research hypotheses. Methodology and empirical findings are reported in section five and six respectively. The seventh section presents the research conclusion.

2. Literature review and hypothesis development

One of the value-based performance measures developed by Stern Stewart and Company in 1991 is the economic value added (EVA). The EVA creator supported that EVA can better explain stock returns than accounting performance measures (Stewart 1994). Therefore, EVA has the capability to replace traditional measures for evaluation of firm performance (Stewart, 1991).

Hence, many studies have addressed the relationship between accounting measures and EVA with stock return. Peixoto (2002) studied 39 Portuguese public companies listed on the Lisbon Stock Exchange during the period from 1995 to 1998. The main results of this study suggest that EVA has no more information content than traditional accounting performance measures in explaining the market value added (MVA). Moreover, Worthington and West (2004) used pooled time-series, cross-sectional data on 110 Australian firms over the period 1992-1998 to study whether EVA is more closely related with stock return than RI, earning, and OCF. Relative information content tests disclosed stock returns to be more highly related to EVA than RI, Earning, and OCF, respectively.

Additionally, Kim (2006) examined the relative and incremental information content

of EVA and traditional performance measures (earning and cash flow) with hospitality firm value. Relative information content test show earning is more beneficial than cash flow in explaining the market value of hospitality firms. Incremental information content test indicates that EVA compared to earnings and cash flow makes only a marginal contribution to information content. Generally, the results do not uphold the suggestion that EVA is better than earning and cash flow in a relationship with the market value of equity.

Accordingly, Yaghoob-nejad and Akaf (2007) studied the relationship between EVA, RI, ROS, ROI, and MVA in Tehran Stock Exchange (TSE). Their result revealed that there is a meaningful relationship between EVA, RI, ROS, and ROI with MVA. In the total firms, the strongest relationships were between ROS, EVA, ROI, and RI with MVA respectively. Ismail et al. (2008), examined EVA as a performance measurement for government-linked companies (GLCs) versus NON-GLCs in Bursa Malaysia. The results of this study revealed that firms with the government as the stakeholders was unsuccessful to associate and had a negative connection with EVA. Firms that had a negative EVA showed that these companies have had a high level of cost of capital; therefore, the government must keep away from investing in such firms.

Additionally, Kumar and Sharma (2011) studied the association between EVA and accounting earnings with the market value in Indian Companies. Their sample involved 873 firms–year observations from the Indian market and for testing the relative and incremental information content the pooled ordinary least squares regression is applied. Relative information content test disclosed that NOPAT, OCF surpass EVA in explanation of the market value of Indian firms. Incremental information content test revealed that EVA creates a minor contribution to information content, more than conventional performance measures (NOPAT, EPS, RONW, and OCF). Overall, the results did not hold up the hypothesis that EVA is greater than conventional accounting measures in a relationship with the market value of the company.

In Addition, Salehi et al., (2011) examined the relation between a value based financial performance measures and value creation in TSE. They choose 92 companies during a four-year period (2005-2009). Their results indicate that there is a meaningful association between value based measures (EVA, MVA, and CVA) and value creation. Rahmani and Modanlo Joibary (2012) investigated the relationship between EVA and ROA in the listed companies on TSE from 2005-2009. The results show the association between EVA and ROA is significant and direct (positive). The coefficient of determination indicates that the changes of ROA can explain 15 % of changes of EVA.

Furthermore, Nakhaei et al.,(2014) studied the relationship between economic value added (EVA), return on assets (ROA), return on equity (ROE), net income (NI), and earning per share (EPS) with share market value (MV) in Tehran Stock Exchange (TSE). The sample includes 87 non-financial companies listed on Tehran Stock Exchange (TSE) over the period 2004–2008. The results indicated there is a significant relationship between EVA, ROE, NI, and EPS with MV, but there is no meaningful association between ROA and MV. Furthermore, Nakhaei (2016) tested the hypothesis that market value added (MVA) is more highly associated with stock return (SR) than traditional performance measures in Malaysian companies. The findings showed that accounting measures (NI, NOPAT and EPS) have higher relative information content with stock return compared to MVA. Thus, the results do not support the hypothesis that MVA is superior to traditional accounting measures in association with stock return. Moreover, the results revealed that MVA has incremental information content with stock return compared to accounting measures.

Additionally, Ali Khan, et. Al. (2016) in a research, empirically tested the relative and incremental information content between EVA and accounting criteria namely

ROA,ROE, operational cash flow (OCF), earnings per share after tax (EPSAT) and debt to equity ratio (DE) with stock price for 28 non-financial firms listed on Karachi Stock Exchange for the period 2009-2012. Their results were found that accounting performance measures outclassed EVA in explaining the behavior of stock prices of firms in Pakistani market. Moreover, the findings did not support the claim of EVA supporters of its superiority over accounting performance measures. Finally, Alsoboa (2017) investigated the relationship between EVA and created shareholders value (CSV) in Jordanian public industrial firms (JPIF), comparing to the return on assets (ROA) over the period 2011-2015. The findings have shown, generally, that the superiority of EVA in predicting and evaluating the CSV could be put into a conclusive and positive light compared to ROA. Nevertheless, the results recommended that one financial measure cannot be enough to measure neither CSV nor firms‟ performance.

According to the above-mentioned literature as well as the objective of the study, the following hypotheses are postulated in the study:

H1: EVA enjoys from a higher relative information content with stock return compared to profitability ratios (ROA, ROE, and ROS).

H2: EVA has higher incremental information content with stock return compared to profitability ratios (ROA, ROE, and ROS).

3. Data and research methodology

3.1. Research variables

In this study, economic value added (EVA), return on assets (ROA), return on equity (ROE), and return on sales (ROS) are independent variables, and stock return (SR) is the dependent variable.

3.1.1. Economic value added (EVA)

EVA introduced by Stern Stewart Co. in 1991 by the book of the quest for the value (Stewart, 1991). Stewart (1991) states, “Every company’s most important goal must be to increase its EVA. Let that be your quest. Forget about earnings, earnings per share, earnings growth, dividends, rate of return, and even cash flow. All of them are fundamentally flawed measures of performance and value. EVA is all that really matters (pp. 175–177).”

EVA is approximate of correct economic profit of a company that is different from accounting profit in three ways: first, EVA merges management of assets and operational efficiency into one criterion that can be simply understood by the operating personnel. Second, EVA is responsible for capital at a rate that compensates investors to provide capital for operations. Finally, EVA modifies the results of accounting reports to eliminate distortions (Anderson *et al.*, 2005).

In this study, EVA is intended found on Young and O’Byrne (2001) and Cordeiro and Kent Jr, (2001), besides, these formulas have been used by (Ismail, 2006, 2008, 2011a, 2011b; Ismail *et al.*, 2008) which is following:

EVA = NOPAT – (WACC × Invested capital)

Where:

NOPAT = profit or loss before tax + interest expense – income taxes – tax shield on interest

Tax shild on interest = (tax rate × interest expense)

Invested capital = short term debt + long term debt + minority interest + shareholders equity

WACC = Weighted Average Cost of Capital

$$WACC = [Cost\ of\ debt \times (\frac{Total\ debt}{Total\ debt + CMVE}) \times (1 - Tax)] + [Cost\ of\ equity \times (\frac{CMVE}{(Total\ debt + CMVE)})]$$

$$WACC = [CD \times (\frac{TD}{(TD+CMVE)}) \times (1- T)] + [CE \times (\frac{CMVE}{(TD+CMVE)})]$$

CMVE = Company's share price × Total shares outstanding

where,

Market value of company = CMVE + Total Debt + Minority Interest

3.1.2. Return on assets (ROA)

ROA is one of the other accounting measures, which shows the efficiency of management in using existing resources for achieving profit. ROA is one of the profitability ratios, which in its analysis, the source of profit, not absolute, but is begging investigated in connection with its acquisition source (Ramazani, 2008).

The ratio of net income to total assets measures ROA after interest and taxes (Brigham and Ehrhardt, 2005):

ROA = Net profit / Total assets

$$ROA = \frac{Net\ profit}{Total\ assets} = \frac{Net\ profit}{Sales} \times \frac{Sales}{Total\ assets}$$

3.1.3. Return on equity (ROE)

ROE shows from the funds engaged by the stockholders, how much the company has earned. ROE does not comprise capital cost (equity cost in this case) in its calculation. It is possible to encourage managers to admit investments able to add some incomes even if they do not cover the capital cost (earn the required return). Moreover, the impacts of capital structure changes on ROE are very strong. Therefore, it might not show the managers efficiency (Irala, 2005).

ROE is the amount of net profit return as a percentage of stockholders equity. ROE assesses a corporation's profitability. It shows how much profit a firm generates the money stockholders have invested. Stockholders invest to get a return on their money, and this ratio tells how well they are doing in an accounting sense (Brigham and Ehrhardt, 2005). The calculation of ROE can be broken up into three separate ratios, as follows:

$$ROE = \frac{NP}{Equity} = \frac{NP}{Sale} \times \frac{Sale}{Asset} \times \frac{asset}{Equity}$$

The three ratios can be drowning that profitability, turnover of assets, and financial leverage. ROE can be made better by improving profitability, by applying more efficiently of assets, and by rising financial leverage. During the next period of time. it became clear that improving the ROE may not basically make an improved stockholder value (De wet and Toit, 2007).

3.1.4. Return on sale (ROS)

ROS measures the net income earned for each dollar of sales. ROS point outs a firm's profit (or loss) for a special period usually one year.

ROS = Net profit / total net sales

3.1.5. Stock returns (SR)

Stock return exhibits the total return that stockholders earned on their stocks over a confirmed period of time. In addition to, the actual dividends paid, including any increase (decrease) in the stock price. For one period SR (Elali, 2007):

$$SR = \frac{(D_t + P_t - P_{t-1})}{P_{t-1}} \times 100$$

Where:

D_t = dividend per share at the end of period t.

P_t = stock price at the end of period t.

P_{t-1} = stock price at the beginning of the period t, (or initial share price).

3.2. Relative and incremental information content

The information content test is managed in two types: incremental information content (IIC) and relative information content (RIC). Incremental information content comparisons assess whether one accounting measure (or set of measures) provides information content beyond that provided by another. Relative information content comparisons ask a subtly different question, which is whether one measure provides greater information content than another or not (Biddle *et al.*, 1995). On the other hand, relative information content (RIC) refers to the information content of one financial measure compared to another. Incremental information content (IIC) indicates whether one financial measure provides additional information over and above that provided by another measure or not (Biddle *et al.*, 1995; Erasmus, 2008).

4. Methodology

The sample data of this study was restricted to listed non-financial companies on Bursa Malaysia and with available annual trading data during the period of 2006 through 2015. After accounting for the missing data items and calculating variables, the final sample size in this study became 3950 firm-year observations (involving 395 companies and 10 years period). The financial companies such as holdings and investments are excluded from the sample data, in order to have a consistent interpretation of certain company characteristics such as earnings and size.

In this study, the panel regression method is used for testing the hypotheses. Baltagi (2008) claimed that panel data has some benefits such as giving a richer source of variation which allows for more efficient estimation of the parameters. With additional informative data, one can get more reliable estimates and test more sophisticated behavioral models with less restrictive assumptions. In addition, another advantage is their ability to control for individual heterogeneity, whereby, no controlling for these unobserved individual specific effects leads to a bias in the resulting estimates. Panel data sets are also better able to identify and estimate the effects that are simply not detectable in pure cross-sections or pure time-series data. In particular, panel data sets are better able to study complex issues of dynamic behavior (Baltagi, 2008).

In panel data, there are different methods, involving the fixed effect and the random effect model. When researchers want to consider all regression coefficients restrict to be

the same across the fixed effect model are used. Random effect model is used when researcher believe that unnoticed effect is unconnected with the descriptive variables (Parvaei and Farhadi, 2013). Furthermore, for choosing the best model (fixed effect or random effect model), the Hausman test is employed in this study. According to the results, the fixed effect model is more appropriate for all regression models.

This study employed one variable regression model for each measure to determine which measure has the greatest relative information content. Then, the results are compared for R-square (R^2). Whichever that has greater R-Square (R^2), has also greater relative information content too. Many investigators applied this approach in their research, e.g. (Asadi *et al.*, 2013; Biddle *et al.*, 1997; Darabi and Esfandiyari, 2009; De Wet, 2012; Holiana and Reza, 2011; Ismail, 2011b; Nakhaei, 2016; Noravesh and Mashayekhi, 2004; Noravesh *et al.*, 2004; Parvaei and Farhadi, 2013).

For determining which measure or measures have the highest incremental information content, this study compared two multiple regression models. Then, R-square of multiple regressions No.2 is deducted from R-square of multiple regressions No.1 ($R^2 2 - R^2 1$); whereby, the difference indicates the incremental information content. Asadi, et al., (2013), Worthington and West, (2004), Parvaei and Farhadi, (2013), Noravesh and Mashayekhi (2004), Nakhaei, et al., (2016), Nakhaei (2016) and Arabmazar-yazdi, et al. (1995) applied this approach in their research.

5. Empirical findings

5.1. Descriptive statistics and correlation matrix

Descriptive statistics for these variables are provided in Table 1. It is observed that ROS has the largest mean and EVA has the lowest mean. Moreover, this table shows ROS has the largest and ROA has the lowest standard deviation. Furthermore, the pair-wise correlations between any two variables (dependent or independent) are presented in Table 2. Looking at the correlations among these measures, almost all independent variables have positively significant correlated with one another, except EVA that has a negative correlation with stock return. EVA has the lower correlation with stock return compare to ROA, ROE, and ROS. It is interesting to note that economic profit measure (EVA) under-perform standard accounting profit measures (ROA, ROE, and ROS), which refutes the EVA proponents that it is highly associated with stock return (Biddle *et al.*, 1997).

Table 1: Descriptive Statistics

Descriptive statistics	DV	Independent Variables			
	SR	EVA	ROA	ROE	ROS
Mean	0.137855	0.015976	0.045991	0.074527	0.090892
Median	0.122660	0.028205	0.042550	0.074810	0.073485
Maximum	1.337840	0.372235	0.335940	0.489950	0.843910
Minimum	-0.936830	-0.434910	-0.303830	-0.460750	-0.871320
Std. Dev.	0.287917	0.093943	0.061608	0.087804	0.145539
Skewness	0.364930	-0.834891	-0.320571	-0.500757	0.342981
Kurtosis	1.915227	2.330900	3.750836	3.968526	3.814803
Observations	3950	3950	3950	3950	3950

DV=Dependent variable; SR= stock return; SEVA= standard economic value added; ROA= return on assets; ROE= return on equity; ROS= return on sales.

Table 2: Correlation coefficients among dependent and independent variables

Variables	DV	Independent Variables			
	SR	EVA	ROA	ROE	ROS
SR	1.0000				
EVA	-0.0281*	1.0000			
ROA	0.2284***	0.4080***	1.0000		
ROE	0.2138***	0.5115***	0.8484***	1.0000	
ROS	0.2471***	0.0956***	0.6003***	0.5280***	1.0000

DV=Dependent variable; SR= stock return; EVA= standard economic value added; ROA= return on assets; ROE= return on equity; ROS= return on sales. *** Correlation is significant at 0.01 Level; ** Correlation is significant at 0.05 Level; * Correlation is significant at 0.10 levels.

5.2. Relative information content tests

The panel data regression models are applicable to this study. The results of the redundant fixed effect-likelihood ratio and Huasman test are shown in Table 3. The regression models 1, 2, 3, and 4 are related to relative information content (H1), and the regression models 5 and 6 are related to incremental information content (H2). The results of redundant and Hausman test illustrated the fixed effect model is suitable for all of the regression models except regression model No. 3. For increasing the comparability of the results and resolving this inconsistent, the fixed effect model IS used for all regression models.

Based on Table 4, the numbers of Durbin-Watson test for model 1, 2, 3, and 4 are 2.239980, 2.249126, 2.239998, and 2.255165, respectively. These results indicated that there are no auto-correlation problems in these single regression models (Narimani, 2011).

Table 3: Redundant fixed effect-likelihood ratio and Hausman test

N	Regression Model	Redundant test; Statistic and (P-value)	Hausman test ; Statistic and (P-value)	Suitable Model
1	$SR_{it} = b_0 + b_1EVA_{it} / MVE_{i,t-1} + e_{it}$	660.878181 (0.0000)***	15.308345 (0.0001)***	Fixed effect
2	$SR_{it} = b_0 + b_1ROA_{it} + e_{it}$	582.158084 (0.0000)***	16.729279 (0.0031)***	Fixed effect
3	$SR_{it} = b_0 + b_1ROE_{it} + e_{it}$	601.143652 (0.0000)***	0.102876 (0.7484)	Fixed effect
4	$SR_{it} = b_0 + b_1ROS_{it} + e_{it}$	463.437186 (0.0090)***	38.201067 (0.0000)***	Fixed effect
5	$SR_{it} = b_0 + b_1ROA_{it} + b_2ROE_{it} + b_3ROS_{it} + e_{it}$	509.584087 (0.0001)***	80.647808 (0.0000)***	Fixed effect
6	$SR_{it} = b_0 + b_1ROA_{it} + b_2ROE_{it} + b_3ROS_{it} + b_4EVA_{it} /MVE_{i,t-1} + e_{it}$	467.179984 (0.0065)***	52.841929 (0.0000)***	Fixed effect

Based on Table 4, the single panel regression with the common coefficient analysis for the period of 2006 to 2015(period of 10 years) showed that for all independent variables F- statistic (P-Value) is significant at 1% level. This table showed that there is a significant relationship between EVA, ROA, ROE, and ROS with stock return. Moreover, this table illustrated the T-statistic (P-value) of EVA, ROA, ROE, and ROS are 2.222015 (0.0263), 11.13088 (0.0000), 10.79730 (0.0000), 6.978334, respectively. Furthermore, these results exhibited that coefficient of these independent variables is significant at the 1% level except EVA that is significant at 5% level. Moreover, this

table showed the positive coefficient of EVA (0.1661), ROA (1.1366), ROE (0.0.7171), and ROS (0.299638) with stock return (SR). Consequently, these results indicated that there is a highly significant relationship between EVA, ROA, ROE and ROS with stock return. Additionally, Table 4 also revealed that ROA has the highest relationship with SR and the highest Adj.R^2 of 9.12% when compared to ROE, ROS, and EVA, with Adj.R^2 of 8.94%, 7.22%, 6.08%, respectively. Furthermore, EVA has the lowest significant association with SR and lowest Adj.R^2. In addition, The results of single regression models indicated accounting measures (ROA, ROE and ROS) have higher relative information content with SR compared to EVA. In other words, the results of the panel data regressions lead to the conclusion that EVA does not significantly outperform ROA, ROE, and ROS. Therefore, these relative information content tests refute the claim of proponents of EVA that EVA is by far the best financial tools that explain stock returns. Consequently, the first hypothesis is rejected.

Table 4: Cross-section fixed effect panel single regression model to examine the RIC of EVA and profitability ratios with SR

Variable	Coefficient	T statistic (P-value)	R-square (R^2)	Adj. R-square	F statistic (P-value)	Durbin-Watson (DW)
Model 1: $SR_{it} = b_0 + b_1 EVA_{it} / MVE_{i,t-1} + e_{it}$						
C	0.135202	29.40810 (0.0000)***	0.154731	0.060786	1.647040 (0.0000)***	2.239980
EVA	0.166076	2.222015 (0.0263)**				
Model 2: $SR_{it} = b_0 + b_1 ROA_{it} + e_{it}$						
C	0.085581	13.34470 (0.0000)***	0.182071	0.091164	2.002837 (0.0000)***	2.249126
ROA	1.136605	11.13088 (0.0000)***				
Model 3: $SR_{it} = b_0 + b_1 ROE_{it} + e_{it}$						
C	0.084414	12.78300 (0.0000)***	0.180441	0.089353	1.980960 (0.0000)***	2.239998
ROE	0.717066	10.79730 (0.0000)***				
Model 4: $SR_{it} = b_0 + b_1 ROS_{it} + e_{it}$						
C	0.110620	18.77809 (0.0000)***	0.164998	0.072194	1.777922 (0.0000)***	2.255165
ROS	0.299638	6.978334 (0.0000)***				

5.3. Incremental information content tests

In this section, the incremental information content of EVA with stock return compared to profitability ratios (ROA, ROE, and ROS) is discussed by running the panel data regressions as in equations (5) and (6). The results are presented in Table 5. This table shows that the values of Durbin-Watson are 2.242645 and 2.246670 for equation (5) and (6), respectively. Thus, there is no evidence of autocorrelation problems in these regression models. Furthermore, this table revealed that the F statistics are seriously significant for both models (model 5; F = 2.022922, P-value < 0.000 and model 2; F = 2.091532, P- value < 0.000), signifying that the three predictor variables in model 5 and four predictor variables in model 6 can be considered to be influencing stock return. The Adj.R^2 of 0.0932 in model 5 and the Adj.R^2 of 0.0992 in model 6 indicate that the variables in the model 5 and model 6 explain only 9.32%%

and 9.92%% of the variation in stock return, respectively. Additionally, this table shows that after adding EVA in the model, Adj.R-square has increased 0.6%, (0.0992 – 0.0932 = 0.006). In conclusion, EVA has minimal incremental information content with stock return compared to accounting measures (ROA, ROE, and ROS). Therefore, the second hypothesis (H2) is rejected. In other words, EVA has minimal incremental information content with the stock return as compared to ROA, ROE, and ROS.

Table 5: Cross-section fixed effect panel multiple regression model to examine the IIC of EVA with SR compared to profitability ratios

Variable	Coefficient	T statistic (P-Value)	R-square (R^2)	Adj. R-square	F statistic (P-Value)	Durbin-Watson (DW)
Model 5: $SR_{it} = b_0 + b_1ROA_{it} + b_2ROE_{it} + b_3ROS_{it} + e_{it}$						
C	0.080665	12.01140 (0.0000)***	0.184404	0.093247	2.022922 (0.0000)***	2.242645
ROA	0.796479	4.126980 (0.0000)***				
ROE	0.360533	3.096420 (0.0020)***				
ROS	-0.069424	-1.182723 (0.2370)				
Model 6: $SR_{it} = b_0 + b_1ROA_{it} + b_2ROE_{it} + b_3ROS_{it} + b_4EVA_{it} /MVE_{i,t-1} + e_{it}$						
C	0.070631	10.09174 (0.0000)***	0.189904	0.099107	2.091532 (0.0000)***	2.246670
ROA	0.892837	4.617318 (0.0000)***				
ROE	0.503643	4.208845 (0.0000)***				
ROS	-0.048763	-0.831279 (0.4059)				
EVA	-0.434517	-4.909762 (0.0000)***				

6. Summary and conclusion

This study tried to investigate whether EVA or profitability ratios are best for explaining stock return in Malaysian companies or not. The results do not support the claim of Stern & Stewart that EVA is superior to traditional accounting measures in explaining stock return. However, we have observed that profitability ratios better explain stock return and among them, ROA has shown the strongest linkages with stock return. Moreover, it is found that all the performance measures have a significant positive relationship with stock return. Furthermore, all the profitability ratios have revealed a higher explanatory power than EVA, suggesting that Malaysian markets can continue to assess the performance based upon of profitability ratios. The numerous reasons can be as to why EVA does not perform well in Malaysia, for example, the adjustments of accounting to NOPAT recommended by Stern Stewart & Co. may not be always effective in Malaysia and might cover measurement error in relation to what information Malaysia markets usage for valuing companies. Additionally, the incremental information content test indicated that EVA has minimal incremental information content with stock return compared to ROA, ROE, and ROS.

Moreover, the results developed in this study are consistent with the findings of researchers such as Kim (2006), Kumar and Sharma (2011), Rahmani & Modanlo-Joibary (2012), Nakhaei, et. al. (2016) and Ali Khan (2016), who concluded that

accounting measures were superior to EVA in explaining the stock return and EVA has incremental information content with stock return compared to accounting measures. In contrast, the results are inconsistent with the findings of researchers such as Ismail (2008) and Alsoboa (2017).

In conclusion, For the reason of significant relationship between EVA and stock return and the minimal incremental information content of EVA, it is proposed that Malaysian companies can be used EVA with accounting measures for evaluating the firms' performance. Thus, EVA can help managers to consider all the cost of capital (debt and equity) and capital returns for improving the company performance and increasing the wealth of shareholders.

Recommendations for Future Research

Based on the results found in this study, the following recommendations are offered for future research:

This study was started in general and for non-separation of various industries. Thus, it is suggested that future research should be done to separate the industry and different years.

In this study, amongst various value based measures, just EVA measure has been used. Therefore, it is recommended that in future study other value-based measures should be used such as; REVA, market value-added (MVA), Tobin's Q, free cash flow (FCF) and cash flow return on investment (CFROI).

This study was done based on EVA measure. In future research can consider the components of EVA and understanding whether the components of EVA has incremental information content compared to the accounting measures or not.

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