

# Performance Appraisal with Accounting and Value Based Measures

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**Abstract.** The Purpose of this paper is to examine the relationship between economic value added (EVA), refined economic value added (REVA), and EVA Momentum named value-based measures or economic measures, and accounting measures (return on assets, return on equity, and return on sales) with share market value in Bursa Malaysia. We will examine whether value-based measures are more highly related with share market value than accounting measures. The sample involves the public companies accepted in Main market of Bursa Malaysia, from 2001 to 2010. The data will be collected from Bursa Malaysia. We will use historical and secondary financial data (e.g. balance sheet, income statement, cash flow statement, stock market price). And for testing the hypothesis, we will use simple and multivariate regression, correlation coefficient, coefficient of determination using SPSS. This study is expected to clarify the relationship between accounting and economic measures with share market value as a company's performance, and it could help to public companies' owners/managers in their making decision and increasing their performance. In this article, the conceptual model is proposed.

**Keywords:** Economic Value Added (EVA), Refined Economic Value Added (REVA), EVA Momentum, return on assets (ROA), return on equity (ROE), return on sales (ROS), Share Market Value (SMV).

## 1. Introduction

The fundamental change in economic situation and rate relations between countries have been witnessed in the past two decades. In this new state of economy, the managers of business faced with new challenges. Shareholder 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, activity of stockholders has reached unparalleled levels and led to raised needs on companies to maximize stockholder [1]. In order to ensure optimal allocation of limited resources, evaluating of the companies' performance is vital. Suitable criteria for evaluating performance of enterprise or shareholder value must be used, if the value of company does not propel toward real value, the funds are not allocated properly [2].

The experiential studies emphasize that there are no single accounting criteria, which illustrate the changeability in the stockholders wealth [3]. Each financial criterion that used for evaluation of company performance must be very connected with stockholders wealth. Accounting performance measures such as NP, NOPAT, EPS, ROI, ROE, and so on, have been criticized because their incapability to shape into a corporation full cost of capital, thus accounting income is not a consistent predictor of firm value and cannot be used for measuring corporate performance. Value based management system has gained popularity in academic literature in last two decades. One such innovation within the field of internal and external performance measurement is EVA[4]. The study is aimed to examine the relationship between value-based measures (EVA, REVA, and EVA momentum) and accounting measures (ROA, ROS, and ROE) with share market value in Bursa Malaysia. The remainder of the paper is organized as follows: research objectives, Literature review, theoretical framework, definition of variables, hypothesis, methodology, and conclusion.

## 2. Research Objectives

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This study aims to achieve the following objectives:

- Providing independent empirical evidence on the information content of EVA, REVA, and EVA momentum, ROA, ROS and ROE.
- Increasing interest in economic measures in the business press, increasing use of EVA, REVA, and EVA momentum by firms and among academics, and potential interest in economic measures among accounting policy makers.
- The study is to identify whether economic performance measures (EVA, REVA, and EVA momentum) can correlate with stock return, and can use these tools for evaluation of companies' performance.
- The study is aimed to test whether there is any significant relationship between economic performance measures (EVA, REVA, ENA momentum) and accounting measures (ROS, ROA, and ROE) with share market value.

### **3. Literature Review**

Stewart[5] first provided evidence of the correlation between EVA and Market Value Added (MVA). Lehn and Makhija[6] analyzed the correlation degree between various performance measures and share market returns. The consequence point out that there are most highly association between EVA and share market returns and this correlation was slightly better than with traditional performance measures such as ROA, ROE and ROS. Milunovich and Tseui [7] found that MVA is more highly correlated with EVA than with EPS, EPS growth, ROE, FCF or FCF growth. Ramana [8] examine the relationship between the economic value added (EVA) and traditional accounting measures (NOPAT, PAT, PBIT, and OCF) with the market value added (MVA) for Indian companies. The results reveal that EVA does not superior to the conventional accounting measures in its connection with MVA. Net operational profit after taxes (NOPAT) and profit after taxes (PAT) better explain MVA compared to EVA. Peixoto [9] had conducted a study on analysis of the information content about net profit (NP), operational profit (OP), and EVA rooted in a sample of 39 Portuguese public companies between the periods from 1995 to 1998. The results show that EVA does not have more information content than conventional performance measures in explanation shareholder market value. There was statistical significant relationship between EVA and MVA.

Shubita [10] in a research studied the relationship between the economic value added (EVA), residual income (RI), net income (NI) and operational cash flows (OCF) with stock return in Amman Stock Exchange over the period 2000 to 2008. The results indicate that net income (NI) is superior to EVA and RI in their relationship with stock return. His findings do not provide any uphold to the claim of Stern Stewart & Co. that EVA is a greater performance measure to explanation stock return compare to other measures. De Wet [11] investigated the relationship between EVA and traditional accounting measures with market value added (MVA). The study rooted on the data of firms listed on the JSE South Africa from 1994 – 2004 discovered that year – on - year basis, EVA did not reveal the strongest association with MVA. The results show strongest association between MVA and operational cash flow. Reddy, Rajesh, & Reddy [12] examined the relationship between EVA, return on capital employed (ROCE), return on net worth (RONW), and earning per shares (EPS) with shareholder value added (SVA). The results show EVA has great correlation with SVA, and EVA is the best suitable gauge for measurement the shareholder value.

### **4. Performance Evaluation**

Performance of Company can be calculated by using different methods. Company performance Measures can be classified qualitative or quantitative performance measures, however, quantitative performance measurement is claimed to give the better outlook on performance of company. Quantitative performance measurement relates to physical measurement that makes possible investors to apprise commerce activities during financial statement of a company [13]. Users of financial statements are evaluated the performance of company by using various criteria. There are several methods for evaluating the performance of company. According to Jahankhani and Sajjadi [14], the performance evaluation criteria are divided into two groups; (I) Economic performance measures, and (II) Accounting performance measures.

## 4.1. Economic Performance Measures

In economic models, the firm value is the function of profitability power, potential investment, and the different between rate of return and cost of capital [15]. In recent years, various concepts have been proposed for measuring the residual income. Use of market value and book value for calculate the cost of capital has had a dramatic difference in results. The most of the economic measures involve; economic value added (EVA), refined economic value added (REVA), market value added (MVA), cash value added (CVA), and free cash flow (FCF) [16]. In this study economic value added (EVA), refined economic value added (REVA), and EVA Momentum selected as economic performance measures.

### 4.1.1. Economic value added (EVA)

The famous economist Alfred Marshall was the first spoke about the concept of economic profit as performance criteria in 1890, where the cost of invested capital is also deducted from profit to estimate the real or economic profit of a company [17]. The economic profit is also the Residual Income (RI) [18]. Stewart [5] introduced the concept of Economic Value Added (EVA) in 1991, and it is registered as the trademark (EVA™) of the Stern Stewart consulting organization. The equation for EVA is based on the equation for RI, but specific definitions are given to income, required rate of return and investment, in order to eliminate undesirable accounting conventions [19]. The idea is to convert the accounting profit in the financial statements to an economic profit [20].

EVA is a revised version of Residual Income (RI) with a difference the way, the economic profit and the economic capital are calculated [21]. The economic value added is a good indicator both for the retrospective evaluation of performances (the economic value added for the historical period) and also for prospective evaluation of performances (the economic value added for the future period) [22]. In this study, economic value added (EVA) is intended found on Cordeiro & Kent [23], and besides, these formulas have been used by Ismail [24], which is following:

$$EVA = NOPAT - (WACC \times IC) \quad (1)$$

$$NOPAT = PBT + IE - TI \quad (2)$$

Where: NOPAT is operational profit after tax, WACC is weighted average cost of capital, and IC is invested capital. PBT is profit and loss before tax, IE is interest expense, TI is tax shield on interest.

$$IC = SD + LD + MI + SE \quad (3)$$

Where: SD is short term debt, LD is long term debt, MI is minority interest, and SE is shareholder equity.

$$WACC = \left[ CD \times \frac{TD}{TD+CMVE} \times (1 - T) \right] + \left[ CE \times \frac{CMVE}{TD+CMVE} \right] \quad (4)$$

$$CMVE = CSP \times TS \quad (5)$$

$$MV = CMVE + TD + MI \quad (6)$$

Where: CD is cost of debt. TD is total debt, CMVE is company market value of equity, and T is tax rate. CSP is company share price, and TS is total share outstanding. MV is market value of company, TD is total debt, and MI is minority interest. There are three ways to increase EVA: (I) make more profit without using more capital, (II) Use less capital, (III) Invest capital in high – return projects. Theoretically it can be proved that EVA is superior to other measures of performance (excluding residual income) on the grounds that it accounts for the full cost of capital, including the cost of equity. The difference between EVA and residual income lies in the adjustments required to the net assets and operating profits for the calculation of EVA [11].

### 4.1.2. Refined Economic Value Added (REVA)

Economic value added (EVA) served as a criterion for value creation for shareholders, but refined value added (REVA) is a tool for better assessment, whether a company's performance has was good financial performance in the past or not. From EVA and REVA is used for predicting the value created for shareholders. Generally, the REVA used for external performance evaluation of company [1]. REVA is a measure that more concerned with performance evaluation of top management levels. Instead, EVA is the simpler shape of these criteria, based on book value, and concerned with performance evaluation of lower levels of management in the firms [25].

One of the major criticisms on EVA is the fact that it computes the opportunity cost of capital employed based on the book values, while the investors expect a return based on the market value. If the investors sell the Co. at its market value and invest the takings on assets with a risk equal to that of the Co. They can expect earning a return equivalent to the investment equity based on the total market value of the Co. and not only the book value of the investment as shown in the balance sheet. For the purpose of correcting this defect, Bacidore, Jeffery, et al. ([1], suggested its replacement by a measuring criterion that they called REVA. REVA consists of the residual not found by deducing the opportunity cost of investors at the market value from the net operating income after tax, which is computed as follow:

$$REVA = NOPAT - (WACC \times MCapital) \quad (7)$$

Where: NOPAT is net operational profit after tax in period t, WACC is weighted average cost of capital, MCAPITAL is the company's market value at the beginning of period t.

$$MV = Mcapital = CMVE + TD + MI \quad (8)$$

#### 4.1.3. EVA momentum

"EVA Momentum is a registered trademark of EVA Dimensions. In 2009, EVA Momentum emerged as the newest EVA-related business performance measure"[26]. Stewart [27] stated that EVA Momentum was "the one ratio that tells the whole story." Colvin [28] stated in *Fortune* that "savvy investors and managers will focus on EVA Momentum." "EVA Momentum has not been empirically investigated in any known previous study" [26]. Stewart [27] advanced earlier EVA work by introducing EVA Momentum as a new measurement tool. Stewart described EVA Momentum as the increase or decrease in economic profit divided by prior period sales. EVA Momentum is calculated as:

$$EVA\ Momentum = \frac{EVA1 - EVA0}{Sales0} \quad (9)$$

Where: EVA1 is economic value added in period one, EVA0 is economic valued added in the prior period, and Sales0 is revenue for the prior period. Stewart [27] described EVA Momentum as an economic measure that is the size and situation neutral, provides trend warnings, and is market-calibrated. In contrast, to Kaplan and Norton [29], who stated no single measure is adequate to measure business performance; Stewart argued EVA Momentum is the single best performance measurement tool.

## 4.2. Accounting Performance Measures

In accounting performance evaluation model, the value of company functions as various parameters such as net profit (NP), earning per share (EPS), profit growth (PG), return on equity (ROE), return on investment (ROI), free cash flow (FCF), and dividend (D) [28]. In this study return on equity (ROE), return on assets (ROA), and return on sales (ROS) selected as accounting performance measures. These criteria describe at below:

### 4.2.1. Return on equity (ROE)

According to Chandra Shil [30] "Among all traditional measures, return on capital is very common and relatively good performance measure. Different companies calculate this return with different formulas and call it also with different names like return on investment (ROI), return on invested capital (ROIC), return on capital employed (ROCE), return on net assets (RONA), return on equity (ROE) etc." "Stockholders invests to get a return on their money, and this ratio tells how well they are doing in an accounting sense" [31]. The calculation of ROE can be broken up into three separate ratios, as follows:

$$ROE = \frac{NP}{TE} = \frac{NP}{TS} \times \frac{TS}{TA} \times \frac{TA}{TE} \quad (10)$$

Where: NP is net profit. TE is total equity, TS is total sales, and TA is total assets. The three ratios, can be depicted that profitability (or return on sales), turnover of assets, and financial leverage. The ROE can be improved by improving profitability (or ROS), by using more efficient of assets, and by increasing financial leverage. Over time it became clear that improving the ROE may not essentially make better stockholder value [31].

### 4.2.2. Return on assets (ROA)

ROA is one of the profitability ratios. It shows the efficient management at using assets to generate earnings. The ratio of net income to total assets measures the return on total assets (ROA) after interest and taxes:

$$ROA = \frac{NP}{TA} = \frac{NP}{TS} \times \frac{TS}{TA} \quad (11)$$

#### 4.2.3. Return on sales (ROS)

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

$$ROS = \frac{Net\ Profit}{Total\ Sales} \quad (12)$$

### 5. Share Market Value

In this study share market value is a dependent variable. Share market value is Total stock market value and book value of interest-bearing liabilities.

### 6. Theoretical framework

Based on the literature review and objective of this study that is to examine the relationship between value-based measures (EVA, REVA, and EVA momentum) and Accounting measures (ROA, ROS and ROE) with share market value in Bursa Malaysia, the theoretical framework was developed (Figure 1).

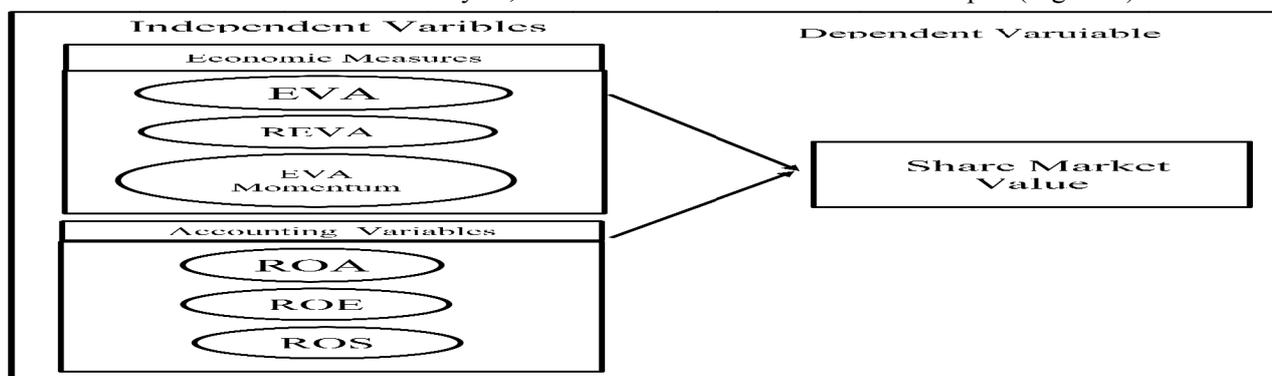


Figure 1: Theoretical framework of the study

### 7. Hypothesis

The following hypothesis is proposed to test the validity of the model:

- There is positive relationship between economic measures (EVA, REVA, and EVA Momentum) and share market value.
- There is positive relationship between accounting measures (ROA, ROE, and ROS) and share market value.
- Information content of economic measures (including EVA, REVA, and EVA Momentum) is greater than the information content of accounting measures (including ROA, ROE and ROS).
- Information content of accounting measures (including ROA, ROE, and ROS) is greater than the information content of economic measures (including EVA, REVA, and EVA Momentum).
- Changes in value added items (including EVA, REVA and EVA Momentum) provide incremental information content beyond changes in conventional data (including ROA, ROE, and ROS), and vice versa.

### 8. Methodology

There are different measures for evaluating of company performance. Value-based performance measures are the most important measures for evaluation of company performance. The main research question is: which of Accounting measures (ROA, ROE, and ROS) and value based measures (EVA, REVA, and EVA momentum) have a greater relationship with share market value in Bursa Malaysia? So, the purpose of the study is to examine the relationship between EVA, REVA, EVA Momentum, ROA, ROE,

ROS, and EPS with share market value in Bursa Malaysia. We will choose the public companies accepted in Main market of Bursa Malaysia (and which data available) from 2001-2010. The historical and secondary data will comprise companies' financial statement and will use to calculate EVA, REVA, EVA momentum, ROA, ROE, and ROS. The data will be abstract from the income statement, balance sheet, and financial highlights, available from KLSE RIIAM information system (KLSE-RIS) website, Bursa Malaysia website, Universiti Malaya (UM), and Universiti Teknologi Malaysia (UTM). The daily share price of the companies will base on Bursa Malaysia's trading closing price. This information is drawn from the Hydra system available online at the library of Universiti of Malaya, Kuala Lumpur. The judgment sampling for non-random sampling will be used instead of random sampling since judgment is used in selecting the sample. For this study, all public listed companies in Bursa Malaysia that their data is available will select as a sample of study. The large numbers of companies will expect to make the study more transparent and representative of a cross-section of companies in Malaysia. The scope of the study only includes companies listed in Bursa Malaysia with availability of data through over the period 2001- 2010. We will use secondary data, and for testing the hypothesis will use multivariate regression, correlation coefficient, coefficient of determination using SPSS, and E-views. This study involves six independent variables (EVA, REVA, EVA Momentum, ROA, ROE, and ROS) and one dependent variable (share market value).

## 9. Conclusion

The proposed model provides the moderating link between economic measures (EVA, REVA, and EVA Momentum) and accounting measures (ROA, ROE, ROS and EPS) with share market value (SMV) to evaluate of company performance. The authors' intention is to fill up the gap about the lack of research on economic and accounting measures in Bursa Malaysia. There is no evidence conclusive that supporting whether EVA and EVA- related measures are associated with financial performance. In addition, EVA and EVA- related research in the public company has been limited. EVA momentum is a new performance measure that was referred by Stewart in 2009. In Malaysia, we don't find any research about EVA momentum and REVA. There is limited research about EVA in Malaysia. This study extends previous EVA research and is the first known study that empirically examines EVA momentum and REVA as a performance measure in the Bursa Malaysia. Furthermore, the study will be carried out resulting from the proposed model to investigate the role of accounting and economic performance measures to evaluation of company performance and value creation. This study is expected to clarify the relationship between accounting and economic measures with share market value as a company's performance, and it could help to public companies' owners/managers in their making decision and increasing their performance.

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