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Is Economic Value Added Momentum (EVA Momentum) a Better Performance Measurement Tool? Evidence from Egyptian Listed Firms

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Abstract

In 1991, Stewart launched the theory of economic value added (EVA) as a modern measure of financial performance assuring its ability in analyzing and improving the firm performance. Later on, in 2009, he introduced the economic value added momentum (EVA Momentum) as the single best firm financial performance measurement tool. Therefore, this study has the purpose of investigating the impact of EVA and EVA Momentum on firm financial performance indicators; return on assets (ROA) and return on equity (ROE) using Generalized Least Squares (GLS) regression. This paper is also aiming to contribute into announcing the economic value added measure with the highest explanatory power relevant to firm financial performance via conducting relative information content analysis along with Stepwise regression. Data were collected for companies listed in the Egyptian Stock Exchange over the period 2010-2019 excluding the financial sector. Statistical techniques are conducted using the statistical package of EViews-version 10. The results showed significant impact for both economic values added on firm financial performance, except for EVA with ROE. In addition, it was found that EVA Momentum could be considered as the most effective economic measure in improving and explaining the financial performance.

Keywords

Economic Value Added (EVA), Economic Value Added Momentum (EVA Momentum), Financial Performance Measurement, Relative Information Content, Stepwise Regression

1. Introduction

Finding a superior evaluation tool for firm financial performance is considered as one of the most important fundamentals of recent financial researches. All the same, measuring the financial performance plays a key role in any business as it helps in assessing to what extent the business is achieving a corporate goals and objectives; it helps managers in their decision making process and in turning them into action; it provides detailed information about the firm financial position and shareholders' wealth creation (Agustina et al., 2020).

However, accounting performance measures such as NP, NOPAT, ROI, EPS, and so on, have been criticized due to their incapability to reflect an organization full cost of capital, so accounting income cannot be applied in measuring corporate performance and cannot be considered as a consistent interpreter of firm value (He et al., 2020). Consequently, in order to overcome this drawback, many researchers and consultants made a great effort for revealing a best possible corporate financial performance measurement tool. For that reason, in 1991, Stewart launched the Economic Value Added (EVA©) metric as a superior measurement for economic profit and the best driver of shareholder value. The main idea of EVA is to transform the accounting profit recorded in the financial statements to an economic profit through deducting the cost of capital from it (Weaver, 2011).

Following EVA, in 2009, EVA Momentum came to light as the most recent economic value added measurement, registered as a trademark of EVA Dimensions by Stern Stewart advancing earlier EVA work (Mahoney, 2011). EVA Momentum is the change in economic profit over prior period sales providing an economic profit ratio. However, Stewart (2009) declared EVA Momentum as the best measure for firm financial performance. In conclusion, the literature review on economic values added and firm financial performance showed that till the date, there is a debate on the superior economic value added technique, EVA or EVA Momentum, in addition to their impact on corporate financial performance.

Therefore, this paper is mainly focused on assessing the impact of economic values added on firm financial performance, as to the best of our knowledge, a very few number of previous studies investigated this area of research. This paper is aiming as well to fill the literature gap of assessing EVA momentum as a better measurement tool for financial performance as claimed by Stewart (2009). Moreover, a comparative analysis (relative information content) along with stepwise regression will be conducted in order to contribute in determining the economic value added measure that is better able to assess the financial performance. Furthermore, this paper has the purpose of exposing the attention of managers to the most important measures of performance that could be used to analyze and evaluate their firm in a way that can assists the management in realizing an improvement in the financial performance leading to a growth in the shareholders' wealth.

The rest of the paper is organized as follows: the next section presents a literature review providing the theoretical framework and the previous studies of economic values added and financial performance. Section three identifies the collected data and the followed methodology. In section four, the empirical findings are discussed and analyzed. The concluding section recapitulates the main findings and highlights the recommendations and limitations of the study.

2. Literature Review

2.1. Theoretical Framework

This section defines economic value added measures and deliberates how their employment might impact the financial performance.

2.1.1. Financial Performance

Financial performance is interpreted as the analysis aiming to find out whether a firm succeeded or not in managing its financial resources following the rules by providing a picture of its ability to attain financial goals besides defining how are the conditions of the firm's management to the public (Fahmi, 2014). More specifically, the financial performance appraisal is considered as the study that can present a real picture of financial performance expected to be achieved by an organization at the end of a certain period (He et al., 2020). Even so, in this study financial performance will be represented by two different accounting measures; return on assets (ROA) and return on equity (ROE).

Firstly, ROA has been used in many researches to measure firm performance and it's calculated as "net income divided by total assets" (Kosalathevi, 2013; Khadafi & Heikal, 2014). It is defined as the evaluation of the company's ability to exploit the assets it has in generating earnings after interest and taxes through determining how much a company earns for each one dollar invested in fixed assets (Maeenuddina et al., 2020). Therefore, the higher the ROA, the greater the firm is able to maximize the efficiency of assets.

Secondly, ROE is defined as the return achieved on book value of a firm's shares, representing the most significant ratio an investor should consider (Panigrahi, 2017). It shows how much a company earns for each dollar invested in the business by an investor and it is calculated as the ratio of net income of the company relative to its stockholders equity (Maeenuddina et al., 2020). Thus, a high ROE ratio illustrates the company's high capability of generating cash internally when depending less on debt. However, according to Nakhaei et al. (2013), ROE along with ROA is one of the preferred and maybe most widely used measuring technique of firms' financial performance.

2.1.2. Economic Value Based Measures

In this study economic value added (EVA) and economic value added momentum (EVA Momentum) are selected as economic value based measures for assessing the financial performance.

1) Economic Value Added (EVA)

The well-known economist Alfred Marshall was the first one speaking about the notion of economic profit as a performance analysis tool in 1890, where the cost of invested capital should be deducted from profit to determine the real or economic profit of a firm (Kyriazis & Anastassis, 2007). Later on, Stewart (1991) launched the theory of economic value added (EVA) that has been registered as the trademark (EVATM) of the Stern Stewart consulting company. Economic value added (EVA) is a measure of a firm financial performance and corresponds to a powerful business tool, which, if implemented correctly, guarantees to improve the firm performance and to provide higher returns to shareholders (Salaga et al., 2015).

The main idea of EVA is to transform the accounting profit recorded in the financial statements to an economic profit through deducting the cost of capital from it (Weaver, 2011). Yet, economic value added is the difference between net operating profit after tax (NOPAT) and the weighted average cost of capital (WACC). Furthermore, according to Pantea et al. (2008), some of the benefits that can be achieved when using EVA as a tool of performance analysis include:

Firstly, economic value added is a measurement technique of firm performance that can stand on its own without requiring any size comparison by means of its peers or trend analysis. Secondly, the economic value added computation results push the investors to allocate their funds for investments with low capital costs.

Lastly, EVA contributed in the success of reputable organizations since its introduction through rationalizing and escalating their performances, for example: Herman Miller, Briggs and Stratton, Coca-Cola, and so many more. The concept of economic value added has the aptitude to be thoroughly employed as performance indicator in the majority of the sub-divisions of a corporation and was even implemented in some firms as an identifier of managers incentives and compensation (Fayed & Dubey, 2016).

2) Economic Value Added Momentum (EVAM)

EVA Momentum came to light in 2009 as the most up-to-date economic value added measurement, registered as a trademark of EVA Dimensions by Stern Stewart advancing earlier EVA work (Mahoney, 2011). Stewart (2009) defined EVA Momentum as "the one ratio that tells the whole story". According to Mahoney (2011), there is no any well-known previous study investigating economic value added momentum empirically. This argument has been confirmed later on by Nakhaei et al. (2013) and to the best of our knowledge, currently there are very few ones.

Stewart (2009) illustrated EVA Momentum as the change in economic profit over prior period sales. Moreover, Stewart (2009) explained EVA Momentum as an economic profit measurement tool situation and size neutral, presents trend alerts, and is market-calibrated. In contrary to Kaplan and Norton (1992) who declared that there is no single measurement adequate to analyze firm performance; Stewart stated, "EVA Momentum is the single best firm performance measurement tool".

Nevertheless, EVA has undergone from some drawbacks merely because it is reported in as an absolute monetary value that could be ambiguous to certain investors and may not accomplish the required function of benchmarking all the way through acting as a size-neutral measure, therefore, it was less helpful in the financial markets (Fayed & Dubey, 2016). Practically, it was hard for managers to be requested to maximize a monetary figure and building their compensation on it, rather than associating their compensations to a certain percentage of improvement. Consequently, Stewart (2009) launched the EVA Momentum as an improved metric over the earlier EVA technique and the other commonly used traditional measures as well.

2.2. Previous Studies

Empirically, few studies examined the power of economic values added especially with firm financial performance. Some of them showed significance for EVA and EVAM as economic value based techniques. In 2005, Ferguson et al. observed the effect of implementing economic value added on firm performance evaluation. The results showed that the implementation of economic value added is supposed to enhance the firms' profitability. In addition, Cheng et al. (2007) examined some economic models of financial performance appraisal in 32 Taiwanese firms from 1997 to 2003. They adopted the economic value added and market value to assess firms' performance. Their results indicated that the economic value added could be more accurate than the market value when evaluating corporate performance. Moreover, Mahoney (2011) investigated some restaurants, lodging companies, and 127 real estate investment firms' data in the US market between 2001 and 2008. The research checked five hypotheses and found that there is no statistical difference between restaurant EVA Momentum and lodging EVA Momentum throughout the studied period, nonetheless the study supported using EVA Momentum as a measure for comparing firms across industries with alike earnings characteristics an underlying revenue generation.

Furthermore, Kosalathevi (2013) assessed the impact of economic value added on financial performance in some selected private banks in Sri Lanka for a period of 7 years starting from 2006 to 2012. The results revealed a significant relationship between EVA and financial performance mainly the ROE. Besides, economic value added showed a direct impact on firms' financial performance. As well, Ceryova et al. (2018) evaluated the business performance of the American multinational technology company Microsoft Corporation using economic value added, economic value added momentum and economic value added margin from 2010 till 2015. They found out that the value of economic value added has notably increased between 2010 and 2015. Hence, the managers of Microsoft Corporation have created a large volume of wealth. Thus, economic value added momentum points out the superior performance and economic value added margin highlight the remarkable productivity performance of the company.

Recently, Maeenuddina et al. (2020) assessed and presented empirical evidence about the economic value added momentum compared with certain traditional financial measurements with respect to working capital management. The study analyzed a sample of 69 non-financial firms listed in Pakistan Stock exchange for a period consisting of 11 years (2007-2017). The findings demonstrated that there is a positive significant relationship between working capital management and EVA Momentum, providing evidence that managers can create value by minimizing their company's cash conversion cycle. It has been verified throughout the overall examination that EVA Momentum is considered superior to traditional firms' financial performance measurement tools in relations with working capital management.

On the other side, some studies didn't show any significance for EVA neither EVAM as economic value based techniques. As, Wirawan (2011) tested the effect of four different independent variables EVA, EVA Momentum, EVA Spread, and ROA on the stock returns of 63 listed firms in the Indonesian market between 2004 and 2010. The results identified that ROA had a the greatest significant effect on stock returns then EVA Spread, while EVA and EVA Momentum showed insignificant effects on stock returns. Likewise, Nakhaei et al. (2012) argued that according to his study entitled "Performance Appraisal with Accounting and Value Based Measures" which had the purpose to investigate the public firms accepted in Main market of Bursa Malaysia starting from 2001 to 2010, no definite evidence was found supporting that EVA, REVA or even EVA Momentum are associated with firms' financial performance. Eventually, Fayed & Dubey (2016) compared three types of performance measurement tools; market-based measures, accounting measures and value-based measures with particular focus on EVAM calculated as (ΔEVA/Trailing Sales). This study covered UAE stock exchanges for a study period of 6 years starting from 2008 to 2013. According to the findings, The EVA momentum and so all value-based measures did not show any significant incremental or relative information content even as the price to book value multiple showed significant relative information content.

3. Data and Methodology

3.1. Variables Description and Calculations

In this research the dependent variable is the firm financial performance, the independent variables are the economic value added (EVA) and the economic value added momentum (EVA Momentum). **Table 1** shows the research variables and their calculations:

3.2. Study Hypotheses

The following hypotheses are formulated to find out the impact of economic values added on financial performance along with declaring the superior economic value added measurement tool in measuring and analyzing the financial performance. These hypotheses will be tested using Generalized Least Squares regression (GLS), relevant information content analysis and Stepwise regression.

Table 1. Variables definition and measurements.

Variables	Indicators	Measurement	Reference
Independent variables			
Economic Value added	EVA	EVA = NOPAT − Capital Charges **Or** EVA = NOPAT − (Invested Capital × WACC)	Nakhaei et al. (2012) and Khadafi & Heikal (2014)
Economic Value Added Momentum	EVA Momentum	EVA Momentum = $(EVA_1 - EVA_0)/Sales_0$	Nakhaei et al. (2012) and Fayed & Dubey (2016)
Dependent variable			
Corporate Financial Performance	ROA ROE	*Net income/total assets* *Net income/total equity*	Tripathi (2018) and Maeenuddina et al. (2020)

H*1: *There is an impact of economic value-added measures on ROA.

H_{1a}: *There is an impact of EVA on ROA.*

H_{1b}: *There is an impact of EVA Momentum on ROA.*

H*2: *There is an impact of economic value-added measures on ROE.

H_{2a}: *There is an impact of EVA on ROE.*

H_{2b}: *There is an impact of EVA Momentum on ROE.*

H*3: *Economic value added (EVA) provides superior relative information content compared to (EVA Momentum) in explaining the financial performance.

H_{3a}: *Economic value added (EVA) provides superior relative information content compared to (EVA Momentum) in explaining the financial performance, represented by ROA.*

H_{3b}: *Economic value added (EVA) provides superior relative information content compared to (EVA Momentum) in explaining the financial performance, represented by ROE.*

H*4: *Economic value added Momentum (EVA Momentum) provides superior relative information content compared to (EVA) in explaining the financial performance.

H_{4a}: *Economic value added (EVA Momentum) provides superior relative information content compared to (EVA) in explaining the financial performance, represented by ROA.*

H_{4b}: *Economic value added (EVA Momentum) provides superior relative information content compared to (EVA) in explaining the financial performance, represented by ROE.*

3.3. Research Model

In this investigation, a multiple regression model is used, as in Nakhaei et al. (2012) and Khadafi & Heikal (2014). A stepwise regression analysis using the backward method is applied to be able to propose the optimum accounting technique(s) to be employed in improving a firm's financial performance. When, applying stepwise regression technique, we are trying to minimize the model, using the backward method; consequently the model obtained presents only the significant accounting technique(s) with respect to the financial performance indicator. The stepwise regression using the backward method is considered in this research, as it is the most commonly used approach and it does not include any interference from the researcher's side. This is due to the fact that all the independent variables should be added in the model and the stepwise regression starts to exclude all the variables that have an insignificant effect on the dependent variable besides, ranking them according to their importance in explaining and analyzing the dependent variable.

First, from the research models presented in Nakhaei et al. (2012), Gupta & Sikarwar (2016) and Fayed & Dubey (2016), we can create the following general equation as a research model to analyze the impact of our independent variables on our dependent variable-corporate financial performance (ROA and ROE):

$$FP = \beta_0 + \beta_1 EVA + \beta_2 EVAM + \varepsilon$$

$$ROA = \beta_0 + \beta_1 EVA + \beta_2 EVAM + \varepsilon \quad (a)$$

$$ROE = \beta_0 + \beta_1 EVA + \beta_2 EVAM + \varepsilon \quad (b)$$

where:

FS: is firm financial performance.

ROA: is return on assets.

ROE: is return on equity.

EVA: is the economic value added.

EVAM: is the economic value added momentum.

β: represents the regression coefficient, where $i = 0, 1, 2 \ldots$ ε: represents the error term.

In parallel with the stepwise multiple regression, two single regression equations are formed to test the relative information content of independent variables as a comparative analysis. Relative information content (RIC) refers to the information content of one variable compared to another using their R-squared values (Erasmus, 2008). More specifically, the R squared values of the regression results are analyzed to determine which economic value added technique is supposed to have the highest explanatory power for the financial performance and thus represents superior relative information content (Gupta & Sikarwar, 2016; Fayed & Dubey, 2016). For that reason, the Generalized Least Squares (GLS) regression is applied.

The descriptive research model is represented in **Figure 1** to describe the impact of economic values added; EVA and EVA momentum on firm financial performance.

3.4. Sampling and Data Collection

All data used in this investigation were collected from Osiris database in addition to some financial statements of firms listed in the Egyptian stock exchange that were purchased from the Egyptian Company for Information Dissemination (EGID) in order to complete a balanced panel data set and avoid any survivorship bias. It should be mentioned that OSIRIS is a fully integrated public

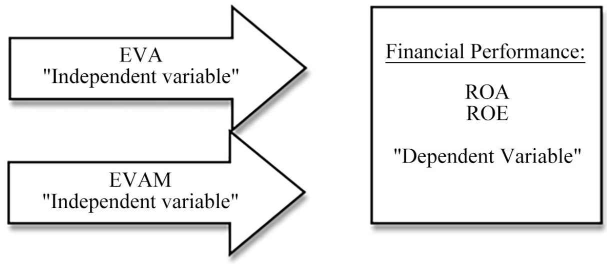

Figure 1. The relationship between independent variables and the dependent variable (Descriptive research model).

company database and analytical information solution produced by Bureau van Dijk Electronic Publishing, SA (BvDEP). Working with specialist data providers from around the world, BvDEP makes OSIRIS the most accurate, comprehensive, and user-friendly information tool available for the world's public companies. Statistical techniques are conducted using the statistical package of EViews – version 10. The chosen sample is companies listed in the Egyptian Stock Exchange over the period 2010-2019 excluding the financial sector such as banks, leasing and insurance companies since they have to follow different practices in terms of earnings and equity as it could mislead the results (Kangarloei et al., 2012).

After excluding the financial sector companies and according to data availability and accessibility a sample of 196 Egyptian firms is obtained for a period of 10 years, leaving us with 1960 observations. A descriptive analysis is performed as a preliminary step to describe some statistics about the research variables, such as the mean, median, standard deviation, minimum and maximum values. Next, normal distribution is tested for the research variables to be able to decide upon the method of regression analysis to be applied in testing the research hypotheses. It also helps in defining whether to use parametric or non-parametric tests. A fourth step is to test the research hypotheses using the Generalized Least Squares (GLS) regression, where the fixed versus random effects are assessed using Hausman test.

The inferential analysis includes a comparative analysis (relative information content) based on simple regression R-squared values for the impact of each of the economic value-added measures; EVA and EVA Momentum on each of the financial performance indicators; ROA and ROE. Moreover, a stepwise regression analysis using the backward method is applied to be able to recommend the optimum economic technique(s) to be used in improving the organizations financial performance.

3.5. Measurement

3.5.1. EVA

According to Cordeiro & Kent (2001), Ismail (2011), Baseri et al. (2013), Nakhaei et al. (2013), Khadafi & Heikal (2014), Nugroho (2018) and Ahmad et al. (2019), the steps to calculate the economic value added are as follows:

1) Calculating NOPAT (Net Operating After Tax):

$$\text{NOPAT} = \text{EBIT}(1 - \text{Tax Rate})$$

2) Counting Invested Capital:

$$\text{Invested Capital} = \text{Total Debt and Equity} - \text{short Term Loans without Interest}$$

3) Calculating WACC (Weighted Average Cost of Capital)

$$\text{WACC} = \left[(\text{D} \times \text{rd})(1 - \text{Tax}) + (\text{E} \times \text{re})\right]$$

Notation:

Capital levels (D) = (Total Debt/Total Debt and Equity) × 100%

Cost of Debt (rd) = (Interest Expense/Total Debt) × 100%

Level of Capital and Equity (E) = (Total Equity/Total Debt and Equity) × 100%

Cost of Equity (re) = (NOPAT/Total Equity) × 100%

Level of Tax = (Tax Expense × Earnings before Tax) × 100%

4) Calculating Capital Charges

$$\text{Capital Charges} = \text{WACC} \times \text{Invested Capital}$$

5) Calculating the Economic Value Added

$$\text{EVA} = \text{NOPAT} - \text{Capital Charges}$$

Or

$$\text{EVA} = \text{NOPAT} - (\text{WACC} \times \text{Invested Capital})$$

3.5.2. EVA Momentum

According to Mahoney (2011), Fayed & Dubey (2016), Nakhaei et al. (2016) and Nugroho (2018), EVA Momentum is calculated as follows:

$$\text{EVA Momentum} = (\text{EVA1} - \text{EVA0})/\text{Sales0}$$

where: EVA1 is economic value added in period one, EVA0 is economic value added in the prior period, and Sales0 is revenue for the prior period.

4. Findings and Analysis

4.1. Descriptive Statistics

Table 2 illustrates the descriptive analysis for the research variables using the mean, median, maximum, minimum and standard deviation for the research variables. The mean value of economic value added EVA is found to be −14,647 with a standard deviation of 1,556,943, a median of −2584.86 along with maximum and minimum values of 54,543,527 and −2E+07 respectively. Furthermore, the mean value of economic value added momentum (EVAM) is found to be .001787 with a standard deviation of .288919, a median of −.00057 along with maximum and minimum values of 8.817178 and −2.49536 respectively. Moreover, the mean value of ROA is found to be .036230 with a standard deviation of .164643, a median of .036306, in addition to maximum and minimum values of .482838 and −4.79815 respectively. Likewise, the mean value of ROE is found to be .083586 with a standard deviation of 1.17341, a median of .077325 along with maximum and minimum values of 13.61297 and −41.36462 respectively.

Table 2. Descriptive statistics 2010-2019.

	Mean	Median	Maximum	Minimum	Std. Dev.
EVA	−14647	−2584.86	54543527	−2E+07	1556943
EVAM	.001787	−.00057	8.817178	−2.49536	.288919
ROA	.036230	.036306	.482838	−4.79815	.164643
ROE	.083586	.077325	13.61297	−41.3646	1.173411

4.2. Normality Testing for the Research Variables

Table 3 presents the formal testing of normality assumption for the dependent and independent variables via Jarque-Bera test of normality. It could be declared that the research variables are not normally distributed, as long as the corresponding *P*-values are lower than .05. Observing that the formal test identified that the values are not normally distributed, an informal test has to be conducted to determine the approximate normality for a sample of 150 observations or more. Table 3 presents the informal test of normality, where it could be observed that the skewness and kurtosis values are all far away from the accepted level of ±1, which means that the data under study are not approximately normal, Therefore, GLS regression is applied.

4.3. Testing the Research Hypotheses

In this section, several steps are followed in order to respond to the research hypotheses, first of all, a comparative analysis is conducted through testing the impact of each independent variable to the extent of each dependent in addition to a relative information content analysis based on simple regression in order to measure the effect of EVA and EVA Momentum on the financial performance indicators; ROA and ROE. Besides, a stepwise regression analysis is performed in order to confirm the relative importance of each of the economic value-added measures in respect with each of the financial performance indicators. Each step mentioned is discussed in a separate subsection below, as follows:

4.3.1. A Comparative Analysis for the Effect of Economic Value-Added Measures on Organizations Financial Performance, Represented by ROA

In this subsection, the GLS simple regression technique is used to derive an equation for the impact of EVA and EVA Momentum on the financial performance indicator; ROA. Therefore, two equations are derived in this subsection, which are concerned with responding to the first hypothesis, stated as follows:

H*1: *There is an impact of economic value-added measures on ROA.

This hypothesis is divided into two sub hypotheses, which are discussed below, each sub hypothesis in a separate equation. Equation (1) is derived for the effect of economic value added (EVA) on return on assets (ROA), as shown in Table 4. Equation (1) responds to the first sub hypothesis of the first hypothesis, which was stated as follows:

Table 3. Normality testing for (2010-2019).

	Skewness	Kurtosis	Jarque-Bera	Probability
EVA	28.03700	1053.092	67,409,956	.000000
EVAM	21.90875	666.0954	24,675,266	.000000
ROA	−14.9986	414.0849	12,996,633	.000000
ROE	−23.6588	873.3750	58,124,055	.000000

Table 4. GLS pooled regression for the effect of EVA on ROA.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	.038503	.002953	13.04012	.0000
EVA	5.98E-08	1.83E-08	3.266580	.0011
R-squared	.072701			
Adjusted R-squared	.065892			
F-statistic	10.67055			
Prob (F-statistic)	.001114			

H_{1a}: There is an impact of EVA on ROA.

It could be observed that there is a significant positive effect of EVA on ROA, as the corresponding *P*-value is .0011 (*P*-value < .05) and the coefficient is 5.98E-08. Also, R-squared was found to be .07, which means that EVA is able to explain 7% of the variation in ROA representing its explanatory power relative to firms financial performance as an economic value added measurement. These findings are consistent with the findings of Ferguson et al. (2005) who observed the effect of implementing economic value added on firm performance evaluation explaining that the implementation of economic value added is supposed to enhance the firm profitability as it contributes in reducing agency conflict and making better decisions. This argument was also supported by Kosalathevi (2013) assessing the impact of economic value added on financial performance in Sri Lanka for a period of 7 years starting from 2006 to 2012. The results revealed a significant relationship between EVA and financial performance reporting that economic value added could be more accurate than other economic tools when evaluating corporate performance and creating investment strategies.

The regression equation is estimated as follows:

$$\text{ROA} = 0.038503 + 5.98\text{E}{-}08 * \text{EVA} \tag{1}$$

Using the fixed versus random effect as shown in **Table 5**, it could be observed that the *P*-value for the Hausman test is .9949 (*P*-value > .05), implying that the random effect is the significant effect in the data under study rather than the fixed effect. It could be observed also that there is a significant positive effect of EVA on ROA using the random effect, as the corresponding *P*-value is .0012 (*P*-value < .05). Similarly, there is a significant positive effect of EVA on ROA using the fixed effect, as the corresponding *P*-value is .0011 (*P*-value < .05).

Table 5. Hausman test for fixed versus random effect of EVA on ROA.

Variable	Fixed Effect		Random Effect		Hausman Test
	Coefficient	Prob.	Coefficient	Prob.	
C	.038503	.0000	.039100	.0000	.9949
EVA	5.98E-08	.0011	6.05E-08	.0012	

The above result means that the first sub hypothesis of the first hypothesis is supported, which means that the alternative hypothesis is accepted revealing that there is a significant impact of economic value added (EVA) on return on assets (ROA).

Equation (2) is derived for the effect of economic value added momentum (EVAM) on return on assets (ROA), as shown in **Table 6** using the GLS simple regression equation. Equation (2) responds to the second sub hypothesis of the first hypothesis, which was stated as follows:

H_{1b}: There is an impact of EVA Momentum on ROA.

It could be observed that there is a significant positive effect of EVAM on ROA, as the corresponding P-value is .0025 (P-value < .05) and the coefficient is .055058. Also, R-squared was .068, which means that 6.8% of the variation in ROA could be explained by EVAM representing its explanatory power relevant to firms financial performance as an economic value added measurement. Empirically, very few studies investigated the link between EVAM and firm financial performance. However, some of them showed significance for EVAM as an economic value added measurement. These findings are close to those of Mahoney (2011) who investigated the US market between 2001 and 2008 supporting the use of EVA momentum as a measure for comparing firms. Furthermore, Ceryova et al. (2018) evaluated the business performance of the American multinational technology company Microsoft Corporation using economic value added momentum and they confirmed that EVAM points out the superior performance highlighting the remarkable productivity of the company. They also stated that EVAM responds to the need to clearly report economic profit as a percentage that can be disaggregated to explore the authentic economic profit drivers whether engendered from productivity profits or rewarding growth or both of them, with each being able to be disaggregated further to show the ultimate primary strengths or weaknesses in the firm at all levels.

The regression equation is estimated as follows:

$$\text{ROA} = 0.035148 + 0.055058 * \text{EVAM} \tag{2}$$

Using the fixed versus random effect as shown in **Table 7**, it could be observed that the P-value for the Hausman test is .2418 (P-value > .05), implying that the random effect is the significant effect in the data under study rather than the fixed effect. It could be observed also that there is a significant effect of EVAM on ROA using the fixed effect, as the corresponding P-value is .0003 (P-value < .05). Similarly, there is a significant effect of EVAM on ROA using the random effect, as the corresponding P-value is .0002 (P-value < .05).

Table 6. GLS pooled regression for the effect of EVAM on ROA.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	.035148	.002891	12.15955	.0000
EVAM	.055058	.018165	3.030949	.0025
R-squared	.068242			
Adjusted R-squared	.060811			
F-statistic	9.186653			
Prob (F-statistic)	.002485			

Table 7. Hausman test for fixed versus random effect of EVAM on ROA.

Variable	Fixed Effect		Random Effect		Hausman Test
	Coefficient	Prob.	Coefficient	Prob.	
C	.035126	.0000	.037112	.0000	.2418
EVAM	.050773	.0003	.051808	.0002	

The above result means that the second sub hypothesis of the first hypothesis is supported, which means that the alternative hypothesis is accepted revealing that there is an impact of economic value added momentum (EVAM) and return on assets (ROA). Therefore, based on the previous analysis, the first hypothesis $H1$ is considered to be fully supported.

Relative Information Content Analysis

This subsection is aiming to respond to the following hypotheses through conducting RIC analysis:

H_{3a}: Economic value added (EVA) provides superior relative information content compared to (EVA Momentum) in explaining the financial performance, represented by ROA

H_{4a}: Economic value added momentum (EVAM) provides superior relative information content compared to (EVA Momentum) in explaining the financial performance, represented by ROA.

After examining the relationships between different economic value-added measures and ROA, it could be observed that the relationship between EVA and ROA was significant positive relationship with an R-squared of 7%, implying the fact that as EVA increases, ROA will increase also. Moreover, it could be observed that the relationship between EVAM and ROA was significant positive relationship with an R-squared of 6.8%, implying the fact that as EVAM increases, ROA will increase as well. This means that H3a and H4a both are supported as long as 6.8% and 7% are almost the same, thus, in this case the results of the stepwise regression are supposed to confirm the optimum economic technique with the greatest relative information content representing the highest explanatory power of ROA.

4.3.2. A Comparative Analysis for the Effect of Economic Value-Added Measures on Organizations Financial Performance, Represented by ROE

In this subsection, the GLS simple regression technique is used to derive an equation for the impact of EVA and EVAM on the financial performance indicator; ROE. Therefore, two equations are derived in this subsection, which are concerned with responding to the second hypothesis of this research, stated as follows:

H2*: *There is an impact of economic value-added measures on ROE.

This hypothesis is divided into two sub hypotheses, which are discussed below, each sub hypothesis in a separate equation. Equation (3) is derived for the effect of economic value added (EVA) on return on equity (ROE), as shown in **Table 8**. Equation (3) responds to the first sub hypothesis of the second hypothesis, which was stated as follows:

H_{2a}*: *There is an impact of EVA on ROE.

It could be observed that there is an insignificant effect of EVA on ROE, as the corresponding *P*-value is .6550 (*P*-value > .05). Thus, EVA failed to show any explanatory power for ROE. However, these findings are consistent with the findings of Fard et al. (2013) in Tehran, giving evidence for an insignificant relationship between economic value added (EVA) and the return on equity (ROE) referring it to the fact that if the economic value added is used then, an economic result is achieved and if ROE is used, then an accounting result will be achieved. As well, Agustina et al. (2020) studied the relationship between economic value added (EVA) and firms' financial performance in Indonesia and the results showed an insignificant relationship between EVA and firm financial performance explaining that this is not considered as a drawback in the economic value added theory but this is due to the deduction of cost of capital from the profit in EVA calculation transforming it into an economic profit while ROE is purely an accounting profit measurement.

The regression equation is estimated as follows:

$$\text{ROE} = 0.103610 + 2.46\text{E}{-}08 * \text{EVA} \tag{3}$$

Using the fixed versus random effect as shown in **Table 9**, it could be observed that the *P*-value for the Hausman test is .0183 (*P*-value < .05), implying that the fixed effect is the significant effect in the data under study rather than the random effect. It could be observed also that there is a significant effect of EVA on ROE using the fixed effect, as the corresponding *P*-value is .0229 (*P*-value < .05). However, there is an insignificant effect of EVA on ROE using the random effect, as the corresponding *P*-value is .2927 (*P*-value > .05).

The above result means that the first sub hypothesis of the second hypothesis is not supported, which means that the null hypothesis is accepted revealing that there is an insignificant impact of economic value added (EVA) on return on equity (ROE).

Equation (4) is derived for the effect of economic value added momentum (EVAM) on return on equity (ROE), as shown in **Table 10** using the GLS simple regression equation. Equation (4) responds to the second sub hypothesis of the second hypothesis, which was stated as follows:

Table 8. GLS pooled regression for the effect of EVA on ROE.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	.103610	.008895	11.64774	.0000
EVA	2.46E-08	5.51E-08	.446985	.6550
R-squared	.000137			
Adjusted R-squared	−.000549			
F-statistic	.199796			
Prob (F-statistic)	.654952			

Table 9. Hausman test for fixed versus random effect of EVA on ROE.

Variable	Fixed Effect		Random Effect		Hausman Test
	Coefficient	Prob.	Coefficient	Prob.	
C	.109980	.0000	.106205	.0000	.0183
EVA	1.73E-07	.0229	6.30E-08	.2927	

Table 10. GLS pooled regression for the effect of EVAM on ROE.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	.103915	.008936	11.62912	.0000
EVAM	.207058	.056155	3.687273	.0002
R-squared	.100672			
Adjusted R-squared	.093261			
F-statistic	13.59598			
Prob (F-statistic)	.000236			

H_{2b}: There is an impact of EVAM on ROE.

It could be observed that there is a significant positive effect of EVAM on ROE, as the corresponding P-value is .0002 (P-value < .05). Also, R-squared was found to be .100672, which means that EVAM could only explain 10.0672% of the variation in ROE representing its explanatory power relevant to firms financial performance as an economic value added measurement. Empirically, very few studies investigated the link between EVAM and firm financial performance. However, some of them showed significance for EVAM as an economic value added measurement. Yet, these findings might be supported by the findings of Mahoney (2011) in US and Ceryova et al. (2018) providing an evidence that EVAM responds to the need to clearly report economic profit as a percentage that can be disaggregated to explore the authentic economic profit drivers whether engendered from productivity profits or rewarding growth or both of them, with each being able to be disaggregated further to show the ultimate primary strengths or weaknesses in the firm at all levels.

The regression equation is estimated as follows:

$$\text{ROE} = 0.103915 + 0.207058 * \text{EVAM} \tag{4}$$

Using the fixed versus random effect as shown in Table 11, it could be observed that the P-value for the Hausman test is .0260 (P-value < .05), implying that the fixed effect is the significant effect in the data under study rather than the random effect. It could be observed also that there is a significant effect of EVAM on ROE using the fixed effect, as the corresponding P-value is .0000 (P-value < .05). Similarly, there is a significant effect of EVAM on ROE using the random effect, as the corresponding P-value is .0001 (P-value < .05).

The above result means that the second sub hypothesis of the second hypothesis is supported, which means that the alternative hypothesis is accepted revealing that there is a significant impact of economic value added momentum (EVAM) on return on assets (ROE). Therefore, based on the previous analysis, the second hypothesis **H2** is considered to be partially supported.

Relative Information Content Analysis

This subsection is aiming to respond to the following hypotheses through conducting RIC analysis:

H_{3b}: Economic value added (EVA) provides superior relative information content compared to (EVA Momentum) in explaining the financial performance, represented by ROE.

H_{4b}: Economic value added momentum (EVAM) provides superior relative information content compared to (EVA Momentum) in explaining the financial performance, represented by ROE.

After examining the relationships between different economic value-added measures and ROE, it could be observed that the relationship between EVA and ROE was insignificant relationship. Meanwhile, it could be observed that the relationship between EVAM and ROE was significant positive relationship with an R-squared of 10.06%, implying the fact that as EVAM increases, ROE will increase also. This means that H4b is supported declaring EVAM as the optimum economic technique with the greatest relative information content representing the highest explanatory power of ROE

4.3.3. Stepwise Regression for ROA

Table 12 shows the stepwise regression applied for ROA using the backward method, where it could be noticed that one model had been obtained. Equation (5) represents the model obtained including both economic value added measures:

$$\text{ROA} = 0.036 + 6.943\text{E}{-8} * \text{EVA} + 0.063 * \text{EVAM} \tag{5}$$

Using the model represented in Equation (5), the relative importance of each economic technique with respect to ROA is identified according to their standardized coefficients, as follows: the first in rank is EVAM (Standardized Coefficient = .298) and the second in rank is EVA (Standardized Coefficient = .286). Therefore, the stepwise regression confirmed the findings of the relative information content analysis by declaring EVA Momentum in the first rank of importance with respect to ROA not EVA.

4.3.4. Stepwise Regression for ROE

Table 13 shows the stepwise regression applied for ROE using the backward method, where it could be noticed that two models had been obtained. Equation (6) represents the first model including both economic value added measures:

$$\text{ROE} = 0.099 + 4.867\text{E}{-8} * \text{EVA} + 0.246 * \text{EVAM} \tag{6}$$

Using the model represented in Equation (6), the relative importance of each economic technique with respect to ROE is identified according to their standardized coefficients, as follows: the first in rank is EVAM (Standardized Coefficient = .217) and the second in rank is EVA (Standardized Coefficient = .026). Equation (7) represents the second model obtained considering only the significant technique with respect to ROE, which is: EVAM. Therefore, the stepwise regression confirmed the findings of the relative information content analysis showing EVA Momentum in the first rank of importance in respect with ROE.

The regression equation for the minimized model is:

$$\text{ROE} = 0.096 + 0.249 * \text{EVAM} \tag{7}$$

Table 14 provides a summary of the main results obtained as response to the research hypotheses.

Table 11. Hausman test for fixed versus random effect of EVAM on ROE.

Variable	Fixed Effect		Random Effect		Hausman Test
	Coefficient	Prob.	Coefficient	Prob.	
C	.104021	.0000	.104310	.0000	.0260
EVAM	.227811	.0000	.213630	.0001	

Table 12. Stepwise regression for ROA.

Model		Unstandardized Coefficients		Standardized Coefficients	T	*P*-value
		B	Std. Error	Beta		
1	(Constant)	.036	.003		11.405	.000
	EVA	.063	018	.286	3.446	.000
	EVAM	6.943E-8	.000	.298	3.843	.000

Table 13. Stepwise regression for ROE.

Model		Unstandardized Coefficients		Standardized Coefficients	T	*P*-value
		B	Std. Error	Beta		
1	(Constant)	.099	.009		10.458	.000
	EVA	4.867E-8	.000	.026	.891	.373
	EVAM	.246	.055	.217	4.431	.000
2	(Constant)	.096	.009		10.564	.000
	EVAM	.249	.055	.209	4.500	.000

Table 14. Summary of research hypotheses results.

Hypothesis	Result
H1: There is an impact of economic value-added measures on ROA.	**Fully Supported**
H_{1a}: There is an impact of EVA on ROA.	Supported
H_{1b}: There is an impact of EVA Momentum on ROA.	Supported
H2: There is an impact of economic value-added measures on ROE.	**Partially Supported**
H_{2a}: There is an impact of EVA on ROE.	Not Supported
H_{2b}: There is an impact of EVA Momentum on ROE.	Supported
H3: Economic value added (EVA) provides superior relative information content compared to (EVA Momentum) in explaining the financial performance.	**Partially Supported**
H_{3a}: Economic value added (EVA) provides superior relative information content compared to (EVA Momentum) in explaining the financial performance, represented by ROA.	Supported
H_{3b}: Economic value added (EVA) provides superior relative information content compared to (EVA Momentum) in explaining the financial performance, represented by ROE.	Not Supported
H4: Economic value added Momentum (EVA Momentum) provides superior relative information content compared to (EVA) in explaining the financial performance.	**Fully Supported**
H_{4a}: Economic value added Momentum (EVA Momentum) provides superior relative information content compared (EVA) explaining the financial performance, represented by ROA.	Supported
H_{4b}: Economic value added Momentum (EVA Momentum) provides superior relative information content compared (EVA) in explaining the financial performance, represented by ROE.	Supported

5. Recommendations

It's highly recommended that policy makers and accounting regulators support the evaluation of economic value added by Egyptian companies, especially, through clarifying the change that could occur in financial performance, in light of economic profit. It is also recommended that policy makers seek to improve the level of supervision, and to enhance the standard of reporting in Egypt in order to advance the acceptability of annual reports as the value of contemporary performance measures such as EVA Momentum should be considered in the reporting and information requirements along with other evaluation criteria. Moreover, firms have to pay attention to their economic value added especially EVA Momentum and give it some worthy consideration and concern. Nevertheless, for the investors, they must be aware of the firm's economic value added and its importance, in order to decide where to invest and supply their funds as they should seek a business applying their needed information content level to guarantee higher level of transparency. Therefore, investors should care about economic profit and give some importance to know complete and accurate information about business performance to enhance their investment decision-making through investing in firms with the economic based measurement tool (EVA Momentum).

6. Conclusion

This research was planned to carry out a financial performance appraisal for Egyptian listed firms using economic values added. Thus, we checked the impact of two independent variables: economic value added (EVA) and economic value added momentum (EVA Momentum) on financial performance indicators: return on assets (ROA) and return on equity (ROE) using Generalized Least Squares (GLS) regression. Additionally, a comparative analysis along with a stepwise regression was conducted to find out the independent variable with the highest explanatory power. Statistical techniques are carried out using the statistical package of EViews-version 10. The chosen sample is companies listed in the Egyptian Stock Exchange for a period of 10 years starting from 2010 to 2019 excluding the financial sector. The results showed significant impact for both economic values added on firm financial performance, except for EVA with ROE. In addition, it was found that EVA Momentum could be considered as the most effective economic measure in improving and explaining the financial performance. As an end result of the findings of this research, a detailed investigation of which components of EVA Momentum contribute to information content, could be of a great importance. Besides, based on the results, the research significance of paper could be highlighted as it's highly recommended that policy makers and accounting regulators support the evaluation of economic value added by Egyptian companies, specifically, through clarifying the change that might occur in financial performance, in light of economic profit. It is also recommended that policy makers enhance the standard of reporting in Egypt in order to advance the acceptability of annual reports as the value of contemporary performance measures such as EVA Momentum should be considered in the reporting and information requirements along with other evaluation criteria. Finally, collecting financial data in Egypt was a hard challenge especially under pandemic. Because of its unavailability, data was collected from two sources; Osiris database in addition to some purchased financial statements to complete the missing data in Osiris, which might produce inconsistency concerning the structure of the financial statements. Therefore, this can be considered as a limitation for our research.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Agustina, N., Sadalia, I., & Silalahi, A. S. (2020). Relationship of Economic Value Added (EVA) and Financial Performance of PT. LC Industry Indonesia Period 2013-2017. *International Journal of Research and Review, 7,* 480-485.

Ahmad, I., Alam, M. S., & Yameen, M. (2019). A Study of Economic Value Added (EVA)

& Market Value Added (MVA) of Hindustan Petroleum Corporation Limited. *Global Journal of Economics and Business, 6,* 226-237. https://doi.org/10.31559/GJEB2019.6.1.14

Baseri, M., Atefat, M., & Baseri, S. (2013). EVA's and REVA's Relative and Growing Information on Benefit Predictions in Tehran Stock Exchange Market Accepted Companies. *Proceedings of European Online Journal of Natural and Social Sciences, 2,* 401-408.

Ceryova, D., Turcekova, N., Adamickova, I., & Moravcíkova, D. (2018). Modern Innovative Approaches of Measuring Business Performance. In *Proceedings of International Conference* (pp. 423-430). Italy: To Know Press.

Cheng, J. M. S., Tsao, S. M., Tsai, W. H., & Tu, H. H. J. (2007). Will eChannel Additions Increase The Financial Performance of The Firm? The Evidence from Taiwan. *Industrial Marketing Management, 36,* 50-57. https://doi.org/10.1016/j.indmarman.2006.06.011

Cordeiro, J. J., & Kent, D. D. (2001). Do EVA(TM) Adopters Outperform their Industry Peers? Evidence from security Analayst Earnings Forecasts. *American Business Review, 19,* 57-63.

Erasmus, P. (2008). Value Based Financial Performance Measures: An Evaluation of Relative and Incremental Information Content. *Corporate Ownership & Control, 6,* 66-77. https://doi.org/10.22495/cocv6i1p7

Fahmi, I. (2014). *Analisis Kinerja Keuangan*. Bandung: Alfabeta.

Fard, A. M., Derakhshani, O., Shafei, M., & Amin, V. (2013). The Relationship between Evaluation Criteria and Economic Value Added Among Accepted Companies in Tehran Stock Exchange. *European Online Journal of Natural and Social Sciences, 2,* 86-90.

Fayed, A. M., & Dubey, S. (2016). An Empirical Study of Impact of EVA Momentum on the Shareholders Value Creation as Compared to Traditional Financial Performance Measures—With Special Reference to the UAE, *International Journal of Economics and Finance, 8,* 23-38. https://doi.org/10.5539/ijef.v8n5p23

Ferguson, R., Rentzler, J., & Yu, S. (2005). Does Economic Value Added (EVA) Improve Stock Performance Profitability? *Journal of Applied Finance, 4,* 101-113.

Gupta, V. K., & Sikarwar, E. (2016). Value Creation of EVA and Traditional Accounting Measures: Indian Evidence. *International Journal of Productivity and Performance Management, 65,* 436-459. https://doi.org/10.1108/IJPPM-01-2014-0008

Hall, J. H. (1998). The Agency Problem, Agency Cost and Proposed Solutions Thereto: A South African Perspective. *Meditari Accountancy Research, 6,* 145-161.

He, W., Chen, L., & Liu, W. (2020). Does New Performance Appraisal System (EVA) Affect Earnings Management? *Nankai Business Review International, 11,* 191-216. https://doi.org/10.1108/NBRI-10-2019-0051

Ismail, I. (2011). The ability of EVA (Economic Value Added) Attributes in Predicting Company Performance. *African Journal of Business Management, 5,* 4993-5000.

Kangarloei, S. J., Motavassel, M., Arzanlu, E., & Soleimani, B. (2012). The Investigation of The Relationship between Economic Value Added (EVA) and Return on Assets (ROA) in Tehran Stock Exchange (TSE). *Business Management Dinamics, 1,* 1-5.

Kaplan, R. S., & Norton, D. P. (1992). The Balanced Scorecard—Measures that Drive Performance. *Harvard Business Review, 70,* 71-91.

Khadafi, M., & Heikal, M. (2014). Financial Performance Analysis Using Economic Value Added in Consumption Industry in Indonesia Stock Exchange. *American International*

Journal of Social Science, 3, 219-226.

Kosalathevi, T. (2013). Impact of Economic Value Added on Market Value Added: Special Reference to Selected Private Banks in Sri Lanka. *Developing Country Studies, 3,* 102-107.

Kyriazis, D., & Anastassis C. (2007). The Validity of the Economic Value Added Approach: An Empirical Application. *European Financial Management, 3,* 71-100. https://doi.org/10.1111/j.1468-036X.2006.00286.x

Maeenuddina, R. B., Hussain, A., Hafeez, M., Khan, M., & Wahi, N. (2020). Economic Value Added Momentum & Traditional Profitability Measures (ROA, ROE & ROCE): A Comparative Study. *Test Engineering and Management, 83,* 13762-13774.

Mahoney, R. (2011). *EVA Momentum as a Performance Measure in the United States Lodging Industry.* Ames, IA: Iowa State University.

Nakhaei, H., Hamid, N. I. N., Anuar, M. A., & Nakhaei, K. (2016). Is Refined Economic Value Added more Associated with Stock Return than Accounting Measures? The Malaysian Evidence. *Society and Economy in Central and Eastern Europe, 38,* 69-85. https://doi.org/10.1556/204.2016.38.1.5

Nakhaei, H., Hamid, N. I. N., Anuar, M. B., & Nakhaei, K. (2012). Performance Evaluation Using Accounting Variables (Net Profit and Operational Profit) and Economic Measures. *International Journal of E-Education, E-Business, E-Management and E-Learning, 2,* 443-448.

Nakhaei, H., Nik Intan, H., Melati, A., & Nakhaei, K. (2013). Evaluation of Company Performance with Accounting and Economic Criteria in Bursa Malaysia. *Journal of Global Business and Economics, 6,* 49-63.

Nugroho, M. (2018). The Effect of Economic Value Added (EVA), Market Value Added (MVA), Refined Economic Value Added (REVA) on Stock Prices and Returns Stock at Manufacturing Industries Who Listed on Indonesia Stock Exchange (BEI). *Archives of Business Research, 6,* 173-188. https://doi.org/10.14738/abr.612.5843

Panigrahi, S. (2017). Economic Value Added and Traditional Accounting Measures for Shareholder's Wealth Creation. *Asian Journal of Accounting and Governance, 8,* 125-136. https://doi.org/10.17576/AJAG-2017-08-11

Pantea, M. I., Munteanu, V., Gligor, D. and Sopoian, D. (2008). The Managerial Performances Evaluation through the Economic value Added. *European Research Studies Journal, 11,* 83-100.

Salaga, J., Bartosova, V., & Kicova, E. (2015). Economic Value Added as a Measurement Tool of Financial Performance. *Procedia Economics and Finance, 26,* 484-489. https://doi.org/10.1016/S2212-5671(15)00877-1

Stewart, G. B. (1991). *The Quest for Value: A Guide for Senior Managers.* New York, NY: Harper Business.

Stewart, G. B. (2009). EVA Momentum: The One Ratio That Tells the Whole Story. *Journal of Applied Corporate Finance, 21,* 74-86. https://doi.org/10.1111/j.1745-6622.2009.00228.x

Tripathi, M., Kashiramka, S., & Jain, P. K. (2018). Flexibility in Measuring Corporate Financial Performance, EVA versus Conventional Earnings Measures: Evidences from India and China. *Global Journal of Flexible Systems Management, 19,* 123-138. https://doi.org/10.1007/s40171-017-0178-0

Weaver, S. C. (2011). Measuring Economic Value Added: A Survey of the Practices of EVA Proponents. *Journal of Applied Finance, 11,* 50-61.

Wirawan, D. I. (2011). *Effects of EVA* (*Economic Value Added*)*, EVA Spread, EVA Momentum and Return on Assets ON Stock Return*. PH.D. Thesis, Yogyakarta: Universitas Gadjah Mada.