Asian Economic and Financial Review
ISSN(e): 2222-6737
ISSN(p): 2305-2147
DOI: 10.55493/5002.v15i3.5343
Vol. 15, No. 3, 354-366.

URL: www.aessweb.com

Importance of economic value added and traditional performance measures in determining market value added: A case study of industrial companies listed on the Amman Stock Exchange

Amjad Salem Younes Qwader[1+]
Ateyah Mohammad Ateyah Alawneh[2]

[1,2]*Tafila Technical University, Jordan.*
[1]*Email: a.alqwader@ttu.edu.jo*
[2]*Email: dr.ateyah@ttu.edu.jo*

(+ Corresponding author)

Article History
Received: 10 February 2025
Revised: 13 March 2025
Accepted: 1 April 2025
Published: 9 April 2025

Keywords
Economic value added
Financial performance
Industrial companies
Market value added
Return on assets
Return on equity
Traditional performance measures.

JEL Classification:
D21; G32; M41; C32.

ABSTRACT

The study explores the relationship between economic value added (EVA), traditional performance measures, and market value added (MVA). A sample of 19 publicly traded industrial companies listed on the Amman Stock Exchange from 2002 to 2023 was analyzed. Multiple regression analysis was employed to test this relationship. A statistically significant long-term positive relationship among MVA, EVA, and traditional performance measures, represented by return on assets (ROA) and return on equity (ROE), was observed. The results further indicated that traditional performance measures had a more significant role than EVA in determining MVA. Moreover, there are short-term negative effects of economic value added (EVA) changes on market value added (MVA), which underscores the difficulties companies face in responding to investors' expectations in the market. While EVA has a positive long-term effect, negative short-term expectations may reflect a company's inability to translate performance improvements into immediate increases in market value. The study recommends that Jordanian industrial companies improve their standards for ROA and ROE, considering their notable impact on MVA. The study also suggests that companies should focus more attention on disclosing EVA and MVA in their financial reports to align with the importance of traditional performance indicators.

Contribution/ Originality: This study is one of the few that explores the evolving relationship between economic value added, traditional performance measures, and market value added amidst the rapid changes in business environments, particularly in the context of Jordanian publicly traded industrial companies as entities concerned with analyzing this relationship. Consequently, this study contributes by filling a significant research gap in this field.

1. INTRODUCTION

The rapid development and significant growth in the local and international business environment, which separates ownership from management, have raised the imperative for developing precise standards for measuring and evaluating corporate performance. Studies by Alsoboa (2017); Nakhaei, Abdul Hamid, and Anuar (2013) and Jahankhani and Sohrabi (2010) have reported that conducting performance evaluations ensures the optimal allocation of available resources, maximizing company value for shareholders. Companies have used various financial performance metrics, such as accounting and market-based metrics (commonly referred to as traditional performance measures), and value-based performance metrics (also known as hybrid financial metrics). Economic value added

(EVA) is an example of a hybrid financial metric that represents a complex mix of accounting and market-based metrics (Omneya, Ashraf, & Eldin, 2021).

Among the most common traditional indicators for evaluating a company's financial performance are accounting and market performance indicators. These indicators include return on equity and return on assets, among others, and are used to measure the performance and financial achievements of joint-stock companies, as well as their efficiency and effectiveness in utilizing resources (Qwader, 2024).

One of the benchmarks for business performance is the EVA indicator, which measures a company's financial performance based on residual wealth; the calculation involves by deducting the cost of capital from operating profit adjusted for taxes on a cash basis (Sabol & Sverer, 2017). The EVA indicator is also to reflect changes in company values and stock returns more comprehensively than traditional financial indicators that rely on absolute book profit (Fayed & Dubey, 2016). For these characteristics, EVA is viewed as one of the most exciting innovations in performance evaluation metrics (Harutyunyan & Badalyan, 2023; Subedi & Farazmand, 2020).

Traditional performance measures for evaluating corporate performance have been subjected to various criticisms because these measures are based on accrual accounting principle. Hence, alternative performance metrics that consider the economic income of companies have been developed instead, and EVA is one of the most prominent of these metrics (Shah, Haldar, & Nageswara Rao, 2015).

Traditional methods for evaluating business results, such as return on assets (ROA) and return on equity (ROE), are generally based on accounting profits. However, these methods are limited due to the significant effects of the accounting practices employed when applying them. Hence, non-traditional tools, such as the EVA metric, provide more accurate and reliable results in measuring corporate performance and highlight their ability to achieve targeted financial value (Al Mamun, Entebang, & Mansor, 2012). The ability to achieve the targeted financial value entails maximizing shareholder wealth, known as the market value added (MVA).

In recent years, interest in the EVA metric has increased among emerging companies as Intense competition has driven shareholders and other stakeholders to have higher expectations for drives higher expectations from shareholders and other stakeholders for better economic and financial returns on their investments (Kim, 2006).

This study seeks to address the problem of understanding the relationship between EVA, traditional performance metrics (such as ROA and ROE), and MVA, considering that existing literature offers varying views on the impact of these metrics on the market value of stocks. Some analysts consider the traditional metrics to be the most capable of explaining stock market value (Altaweel & Mhna, 2019; Sharma & Kumar, 2012), while others emphasize the importance of developing new metrics, such as EVA, to evaluate a company's performance (Subedi & Farazmand, 2020).

Others have argued that EVA is a more effective tool for interpreting stock market value (Allal, 2021; Rasool, Ullah, Hussain, & Usman, 2021). This viewpoint is based on the identified shortcomings of traditional metrics, such as their failure to consider business and financial risks determined by the nature of operations and the ratios of debt and equity used to finance assets. Furthermore, traditional metrics do not reflect cash flows generated from operations, nor do they account for dividend distribution policies, thereby causing deficiencies in the accuracy of financial evaluation. Traditional metrics do not consider the time value of money and measure a company's actual economic value inaccurately (Sabol & Sverer, 2017).

Thus, a crucial question is identifying which of these metrics better reflects changes in the MVA of companies. This study explores the relationship between EVA and traditional metrics to identify which one has a greater impact on MVA. The study uses the case of industrial companies listed on the Amman Stock Exchange, which represents a part of emerging markets, as its focus.

The study is significant because it examines a controversial topic among authors: clarifying the relationship between EVA, traditional performance metrics, and MVA. The study further attempts to provide recommendations

based on the findings to assist company decision-makers in making investment decisions to enhance MVA, which is the more comprehensive goal for the shareholders of these companies.

The structure of this paper is as follows: the second section presents a review of previous research in this field, the third section describes the variables utilized, and the fourth section presents the hypotheses tested. The fifth and sixth sections address the statistical methodology employed and the results of testing the hypotheses, respectively. Finally, the seventh section presents the key conclusions reached by the study.

2. LITERATURE REVIEW

Traditional performance metrics have been widely utilized as indicators for measuring corporate performance. Among these traditional metrics, accounting-based metrics, such as ROA and ROE, have emerged as significant measures. Studies have shown that accounting-based metrics have been effectively used in developed and emerging markets. Studies have examined the relationship of these metrics with stock returns and prices, as well as their overall impact on company value. However, these metrics have also been criticized because they are susceptible to the effects of variations in accounting methods and rely heavily on estimates, leading to distortions in accounting data and diminishing their effectiveness as performance evaluation tools, especially in generating necessary information for such assessments (Alshehadeh, Elrefae, & Injadat, 2022; Kadar & Rikumahu, 2018; Oreshkova, 2020).

The failure of traditional metrics, such as residual income and accounting-based returns, to consider the total cost of the capital used leading to its inability to accurately assess true economic returns, have also been subjected to criticism (Mousa, Sági, & Zéman, 2021).

Stern Stewart Co., an American consulting firm, developed the EVA measure as a tool for performance evaluation and maximizing owner wealth. This metric reflects the idea of converting accounting profit into economic profit. Analytical evidence provided by the firm indicated a direct relationship between EVA and the market value of shares, which contributes to the maximization of owner wealth.

The EVA is considered an accurate formula for measuring residual income and has been previously employed in various fields. The idea that managers should achieve returns exceeding the cost of capital is not new and has been addressed by Bromwich and Walker (1998). Among the notable contributions in this area, Stewart enhanced measurements related to residual earnings, capital and the cost of capital, adding a new dimension to the understanding of financial performance (Lovata & Costigan, 2002).

The first evidence of the correlation between EVA and the market value of shares was presented by Stewart (1991) leading to further research on the relationship between various performance metrics and stock market returns.

In this context, Lehn and Makhija (1997) analyzed the relationship between diverse performance metrics and stock returns, concluding that a strong correlation exists between EVA and stock market returns, with this correlation being superior to traditional metrics such as ROA and ROE.

De Wet (2005) examined the relationship between EVA and traditional accounting metrics based on data from companies listed on the Johannesburg Stock Exchange in South Africa during the period from 1994 to 2004. The results revealed a strong correlation between MVA and operating cash flows, with the standardized relationships between MVA, operating cash flows, ROA, and EVA being 38%, 15%, and 8%, respectively. The study also showed a very weak relationship between earnings per share and sales revenue with MVA.

Paula and Elena (2009) examined the relationship between EVA, earnings per share, operating cash flows and sales revenues with MVA from 1994 to 2004 and reported a strong relationship between MVA and operating cash flows. However, their findings indicated that EVA did not have a strong correlation with MVA.

Sharma and Kumar (2012) compared several performance metrics, including EVA and traditional performance metrics represented by earnings per share, ROE, and return on investment. The findings indicated that traditional performance metrics were superior as a tool for measuring the performance of Indian companies. EVA was also found to be significantly correlated with MVA. Earnings per share and return on investment had a significant impact on

explaining MVA, suggesting the necessity of using EVA with traditional metrics when evaluating companies and formulating investment strategies.

Lulu (2016) compared the effect of EVA on the market value of shares for a group of industrial companies listed on the Palestinian Stock Exchange to that of traditional performance metrics and reported that the EVA index had higher explanatory power for changes in market values of stock prices as compared to ROI. The study further reported that the earnings per share index had the highest explanatory power among performance indicators, followed by RO and EVA. The findings showed that the combined traditional performance indicators comprised the best model for explaining changes in the market value of stock prices.

Altaweel and Mhna (2019) explored the strengths of the EVA measure and that of traditional metrics in explaining stock returns in the Kuwait Stock Market and determined that traditional metrics (ROI, ROE, and earnings per share) were still the most common and effective measure for explaining company value for investors of the Kuwait Stock Market. Nonetheless, the study added that a more comprehensive view of a company's performance and its ability to create value for shareholders can be achieve by integrating the EVA measure with traditional metrics into a single model.

Kashmiri (2020) evaluated the capacity of the EVA and traditional financial indicators to explain changes in the market values of shares of listed industrial companies in the Saudi stock market and concluded that the ROI index had greater effect on stock market prices.

Rasool et al. (2021) assessed the comparative relationship between value-added financial performance and traditional indicators with the stock returns of companies listed on the Pakistan Stock Exchange and determined that traditional accounting metrics did not affect the stock prices of listed companies. They also found that EVA measures could reflect the fluctuations in the stock prices of these companies, which means the stock price of a company may decline if it cannot provide economic value to its shareholders.

Allal (2021) measured the effectiveness of EVA and traditional performance indicators in creating value and maximizing shareholder wealth in the Saidal Group, which operates on the Algerian Stock Exchange. The study's results indicated that traditional indicators such as ROI and ROA may provide good indicators of financial performance. However, they may not fully reflect the ability to create value compared to modern indicators such as EVA.

Priatna and Darmansyah (2024) found no significant differences between traditional performance metrics and EVA in influencing the stock returns of telecommunications companies listed on the Indonesia stock exchange.

3. RESEARCH VARIABLES

In this study, EVA, ROA, and ROE are considered independent variables, while MVA is regarded as the dependent variable.

3.1. Economic Value Added

The Economic Value Added (EVA) concept was first identified in Stewart (1991). Stewart (1991) proposed that all companies should aim to enhance EVA as a primary goal by saying, "The most important goal for every company should be to increase EVA. Make this your goal. Forget profits, earnings per share, earnings growth, dividends, and even cash flow."

EVA represents the assessable value a company creates or adds to after covering the cost of capital (both debt and equity) (Stewart, 1991).

EVA is calculated by deducting total capital costs from the company's profit after taxation and from its day to day trading activities (Noravesh & Mashayekhi, 2004).

The key point highlighted by EVA is that value is only considered created when the return on investment exceeds the total cost of capital, implying that the cost of capital accounts for investment risks (Biddle, Bowen, & Wallace,

1998). The following equation is used to calculate EVA, where the total cost of capital employed is deducted from post-tax operating profit (Noravesh & Mashayekhi, 2004).

$$EVA_t = NOPAT_t - (WACC_t x Capital_{t-1}) \quad (1)$$

Where:

- EVA: Economic Value Added, a true measure of corporate performance.

EVA is a modern measure of corporate performance aimed at assessing the value a company adds to its shareholders. Simply put, EVA represents the difference between the profits generated by the company using invested capital (ROIC) and the actual cost of the capital employed to achieve those profits (Yaman & Topal, 2024).

$$EVA_t = (ROIC_t - WACC_t) \times xCapital_{t-1} \quad (2)$$

Where:

- ROIC: Return on Invested Capital, a measure of the company's efficiency in utilizing capital. This rate can be compared directly to the cost of capital to determine value creation or destruction within the company.
- WACC: Weighted Average Cost of Capital, the average cost the company pays for all sources of financing.

Net operating profit after tax is divided by the total capital employed to calculate the rate of invested capital.

$$ROIC = \frac{NOBAT}{Capital} \quad (3)$$

$$WACC = 5\,CD\,X\,\frac{TD}{TD+TE}\;X\,(1-T) = +[CE\frac{TE}{TD+TE}] \quad (4)$$

The Capital Asset Pricing Model (CAPM) is used to calculate EVA.

$$RI = RF + [(RM - RF) \times \beta I] \quad (5)$$

Where:

- RI is the expected return rate on equity.
- RF is the risk-free rate.
- βI is the systematic risk or market risk, which reflects the sensitivity of a company's excess return relative to market excess return, calculated as follows.

$$ROIC = \frac{COV(RI,RM)}{VAR(RM)} \quad (6)$$

Where:

- RM is the expected market return, calculated as.

$$ROIC = \frac{It - It-1}{It-1} \quad (7)$$

Where:

It: Is the market index at the end of period It-1,t is the market index at the beginning of period -t.

3.2. Return on Assets

ROA reflects a company's ability to generate profits from its owned assets. It measures how efficiently management is converting assets into profits. ROA is calculated by dividing net income by total assets. Therefore, the higher the ROA, the more effectively the company is utilizing its assets to generate profits. ROA is also an important measure for comparing companies within the same industry because it can be used to identify the most profitable and efficient companies in asset utilization.

$$\text{ROE} = \frac{NI}{TA} = \frac{NI}{TS}\;X\;\frac{TS}{TA} \quad (8)$$

Where:

- TA is total assets.
- NI is net income.

- TS is total sales.

3.3. Return on Equity

According to Qwader (2022) ROE is one of the most commonly used traditional performance measures, characterized as a relatively effective tool for assessing management efficiency in companies. Different companies calculate this return in various ways and refer to it by various names, such as ROI, Return on Invested Capital (ROIC), Return on Capital Employed (ROCE), Return on Net Assets (RONA), and ROE (Nakhaei & Hamid, 2013).

Shareholders invest their money with the goal of achieving a suitable return, which reflects their success in generating accounting profits and maximizing their wealth. Brigham (2016) pointed out that this ratio reflects the company's financial performance from the shareholders' perspective.

The calculation of ROE can be divided into three distinct ratios, allowing for a more accurate assessment of capital utilization efficiency and investment effectiveness. These ratios provide valuable insights into how companies achieve their returns and contribute to informed investment decision-making.

$$ROE = \frac{NI}{TE} = \frac{NI}{TS} X \frac{TS}{TA} X \frac{TA}{TE} \quad (9)$$

Where:

- NI is net income.
- TE is total equity.
- TS is total sales.
- TA is total assets.

3.4. Market Value Added

EVA is a measure that reflects the value added for the company's shareholders based on its actual economic performance. In contrast, MVA measures the market valuation of the company's worth, reflecting the added value generated by management above the capital invested by shareholders. The following equation can express as MVA.

$$MVA = MVC - Capital\ employed \quad (10)$$

Where:

- MVC: Market value of the company.

For publicly traded companies, the market value is calculated by multiplying the number of outstanding shares by the share price, then adding the book value of the debt because the market value of debt is typically unavailable. Thus, the capital employed can be considered the book value of investments in the company, which consists of both debt and equity.

Therefore, the equation can be reformulated as follows (Saifi & Benammara, 2015).

$$MVA = MVE - BVE \quad (11)$$

Where:

- MVA: Market value of equity.
- BVE: Book value of equity.

The equation can also be expressed in the following relationship (Maqbel, 2010).

$$MVA = \sum_{t=1}^{n} \frac{EVAt}{(1+K)^t} \quad (12)$$

These elements are based on the information available in the company's balance sheet, facilitating analysts and investors in assessing the company's performance in financial markets (Vijayakumar, 2012).

4. METHODOLOGY AND TESTING THE HYPOTHESES

This research is deductive aims to infer relationships between the dependent and independent variables included in this study. The relationship will be tested using the Autoregressive Distributed Lag (ARDL) model, as this model is characterized by its ability to deal with time series that contain fixed or non-stationary variables at the level, which makes it suitable for studying such relationships in the long run. The study focuses on the period (2002-2023), providing reliable data for the study variables, ensuring the representation of long-term trends between these variables, and considering the consistency of the study period with previous studies, to enhance the reliability of the results.

The data concerning the variables included in this study were obtained from the website of the Amman Stock Exchange. The researchers employed a purposive sampling method when selecting the study sample, which includes 19 Jordanian industrial companies listed on the Amman Stock Exchange, as shown in Table 1. This selection was made from a total of 67 industrial companies for which annual trading data are available for the period from 2002 to 2023.

The purposive sampling method follows specific criteria that companies in the sample must meet.

- The company must be listed on the Amman stock exchange.
- The company must not have been suspended from trading during any year of the study period.
- The company must not have been acquired or merged with another entity.

Table 1. Study sample companies.

Number	Company	Number	Company
1	Arab Aluminum Industry / Aral	11	Dar Al Dawa development & investment
2	Ready mix concrete and construction supplies	12	The industrial commercial & agricultural
3	Arabian steel pipe manufacturing	13	Premier business and projects co. Ltd
4	The Arab potash	14	Jordan industrial resources
5	Jordan steel	15	Jordan poultry processing & marketing
6	National Aluminium Industry	16	Jordan dairy
7	The Jordan pipes manufacturing	17	General investment
8	National steel industry	18	Universal modern industries
9	Jordan phosphate mines	19	Nutri Dar
10	The Jordan worsted mills		

Source: Amman stock exchange data.

5. REGRESSION MODEL USED

The selection of study variables comes from the increasing need to identify the factors that affect the assessment of the MVA of companies in the industry, increase understanding of the relationship between EVA and traditional performance measures MVA, and provide results that enhance the development of the Jordanian industrial sector. Based on the previous theoretical and empirical literature, we suggest the existence of a relationship between MVA, EVA and traditional performance measures. Accordingly, we propose the following model to describe this relationship.

$$MVA = f(EVA_t, ROA_t, RON_t) \quad (13)$$

We used the cointegration analysis approach to analyze the relationship between the variables accurately. This approach allows us to test for the existence of a stable or long-term equilibrium relationship between the variables, even if short-term fluctuations occur. In this context, several approaches to cointegration analysis, such as the Engle-Granger method and the Johansen method, can be used. However, both approaches require all variables to be integrated in the same order, meaning that they must all either be stationary or follow a long- term trend (Enders, 2015).

Given the possibility that some variables may be stationary while others are not, we will utilize the autoregressive distributed lag bound test approach. This approach is more flexible because it allows for the inclusion of variables with different integration properties within the model (Pesaran, Shin, & Smith, 2001).

Therefore, the model in Equation 12 will be modified to include short-term and long-term effects, enabling us to analyze the relationship between the variables. Consequently, the testing model will take the following form.

$$\Delta MVA_t = \alpha_0 + \alpha_1 \Delta MVA_{(t-1)} + \alpha_2 \Delta EVA_{(t-1)} + \alpha_3 \Delta ROE_{(t-1)} + \alpha_4 \Delta ROA_{(t-1)} + \beta_1 MVA_{(t-1)} + \beta_2 EVA_{(t-1)} + \beta_3 ROE_{-(t-1)} + \beta_4 ROA_{(t-1)} + \varepsilon_t \quad (14)$$

Where:

- ΔMVAt: Change in MVA during time tt.
- ΔEVA(t-1), ΔROE(t-1), ΔROA(t-1): Changes in EVA, ROE and ROA during the previous period (t−1)(t−1). These are the independent variables that we believe affect the change in MVA.
- MVA(t-1), EVA(t-1), ROE(t-1), ROA(t-1): Levels of the independent variables during the previous period (t−1)(t−1). These terms represent the long-term effects of these variables on MVA.
- α0, α1, α2, α3, α4, β1, β2, β3, β4: Regression coefficients that represent the magnitude and effect of each variable on the dependent variable.
- εt: Error term representing all other variables that affect MVA but are not included in the model.

6. RESULTS OF MODEL ESTIMATION

The cointegration analysis involves several steps, the first of which is the application of unit root tests to the study variables. The study relied on the Augmented Dickey-Fuller (ADF) test to examine the degree of integration among the variables included in the model (Enders, 2015). Table 2 presents the results of the unit root test using the ADF test under the presence of a constant term, as well as under the presence of a constant term and a linear time trend. The results indicate that the time series for MVA, ROA and ROE are non-stationary at the level I(0) and become stationary after taking the first difference I(1); thus, these variables are integrated of the first order. In contrast, the test results indicate that EVA was stationary at levels I(0).

Table 2. Results of unit root test on study variables.

H0: There is a T unit root; ADF test				
Variables	**MVA**	**EVA**	**ROA**	**ROE**
Constant	-1.83 (0.45)	-3.62 (0.01)	-2.91 (0.17)	-2.35 (0.37)
Constant & trend	-2.46 (0.18)	-3.66 (0.035)	-1.19 (0.84)	-2.79 (0.21)
Variables	First-order differences			
	D(MVA)	D(EVA)	D(ROA)	D(ROE)
None	-2.92 (0.01)	----	-2.43 (0.02)	-3.13 (0.00)
Constant	-3.41 (0.02)	----	-3.53 (0.76)	-3.07 (0.04)
Constant & trend	-3.32 (0.07)	----	-4.24 (0.03)	-4.16 (0.00)
Degree of integration	I(1)	I(0)	I(1)	I(1)

Note: The letter D refers to the first differences, and the values in parentheses represent the P-value.

The second step involves determining the existence of a long-term relationship between the variables by conducting the bound test within the framework of cointegration analysis by estimating Equation 13 and testing the null hypotheses H0: β1=β2=β3=β4=0 using the F test. The optimal number of lags for each variable was determined using the Akaike information criterion, with a maximum lag length of two, due to the small sample size under a linear time trend. The best model was (2,1,2,1), which includes two lag periods for the dependent variable MVA and lag

periods for the independent variables as follows: one lag period for EVA, two lag periods for ROA and one lag period for ROE.

Table 3 presents the results of the bound test, and according to the results of the FF test, the computed value (12.59) exceeds the upper critical value at a 1% significance level. This result indicates the rejection of the null hypothesis of no long-term equilibrium relationship, confirming the existence of a stable relationship between MVA and other financial metrics in the long term.

Table 3. Results of cointegration estimation-bound test approach (ARDL-bound test).

Bound test H0: No levels relationship	**ARDL (2,1,2, 1)**
F- statistic	12.5914
Critical value	I(0) I(1)
10%	2.78 3.67
5%	3.19 5.14
1%	5.36 6.49
Breusch-Godfrey serial correlation LM	F- statistic
Test: H0: No autocorrelation	1.27 (0.27)
Heteroskedasticity test: Breusch-Pagan	F- statistic
Godfrey: H0: No heteroskedasticity.	0.75 (0.62)
n	24

Note: The value in parentheses represents the P-value.

After rejecting the null hypothesis and confirming the existence of a long-term relationship of the model variables, the next step of cointegration analysis is focuses on estimating both long and short-term relationships. The outcomes from the long-term relationship as illustrated on Table 4 indicate a direct relationship between MVA and each of the EVA, ROA, and ROE. More specifically, the results suggest that an increase of 1% in EVA would, in the long term, raise MVA by an average of 6%. Similarly, an increase of 1% in ROA increases MVA by 2%, and an increase of 1% in ROE increases MVA by 8%. These results indicate that enhancing traditional financial performance indicators, EVA, contributes to maximizing shareholder wealth, or what is known as MVA.

Table 4. Results of long-term relationship estimation dependent variable: market value added.

Independent variables	**Estimated parameters**
@ TREND	-0.047 (0.013)
(EVA)	0.062 (0.027)
(ROA)	0.019 (0.048)
(ROE)	0.081 (0.035)
n	24

Note: The value in parentheses represents the P-value, and all parameters are significant at 5%.

Table 5 shows the results of estimating the short-term relationship. The results of estimating the error correction model or the short-term relationship indicate that the MVA in the short term is inversely determined by changes in EVA. The reason for this may be that investors' expectations of improvement in EVA may not be immediately reflected in the company's stock market value, especially if investors expect better or worse performance. The increase in EVA may also be less than investors' expectations, which may lead to investors' disappointment and a decline in the stock price. The results also indicate a positive effect of changes in ROA and ROE on the MVA.

The negative and significant value of the error correction coefficient confirms the existence of an automatic adjustment mechanism that drives the variables towards the long-term equilibrium state. This finding means that

any deviation from the long-term relationship is gradually corrected, with 76% of the balance being restored within one year.

Table 5. Results of estimating the short-term relationship, the error correction model.

Independent variables	Estimated parameters
The constant of the pattern	1.57- (0.00)
D (MAV)(-1)	0.31 (0.001)
D(EVA) D(EVA) (-1)	 -0.021 (0.67) -0.010 (0.011)
D(ROA)	0.034 (0.029)
D (ROE)	0.081 (0.042)
n	24

7. DISCUSSION OF RESULTS

This study analyzed the relationship between EVA, traditional performance measures, and MVA among a group of industrial companies listed on the Amman Stock Exchange, based on annual data spanning from 2002 to 2023. A cointegration analysis using the bounds approach was employed to explore these relationships in the short and long term, yielding several key conclusions.

First, the results showed a positive relationship between MVA, EVA, ROA and ROE. The findings indicate that a 1% increase in EVA leads to an increase of up to 6% in MVA in the long term. Additionally, a 1% increase in returns on assets results in approximately a 2% increase in MVA, while a 1% increase in returns on equity leads to an increase of up to 8% in MVA.

Second, short-term relationship estimates suggest that MVA is negatively affected by changes in EVA. At the same time, it is positively influenced by changes in ROA and ROE, reflecting that short-term expectations may not always mirror improvements in EVA, resulting in negative effects on MVA.

Third, the results reveal that EVA has a positive and significant impact on MVA in the long term; however, in the short term, it exhibits a negative and significant effect. This contradiction may reflect investor expectations regarding improvements in EVA, which may not quickly translate into changes in the market value of company shares, especially if they anticipate better or worse performance.

Finally, traditional performance measures were confirmed to have a greater short- and long-term influence on MVA as compared to EVA. ROE had the largest impact, followed by ROA and EVA. This trend reveals that investors in the Amman Stock Exchange tend to rely on traditional profitability indicators (ROE and ROA) as primary benchmarks for evaluating company attractiveness and making investment decisions, emphasizing the importance of these indicators in the local investment context.

8. CONCLUSION

This research study conducted a comprehensive analysis of the relationship between EVA and traditional performance measures and between EVA and MVA in an industrial firm group listed on the Amman Stock Market for the period from 2002 to 2023. Several key conclusions can be obtained from the results, the most notable of which is the presence of a statistically significant positive long-term relationship between MVA, EVA, ROA and ROE. These results are consistent with Altaweel and Mhna (2019) demonstrating that the combination of traditional

objective measures of a company's performance and EVA into one single model leads to a more accurate assessment of a firm's value creation capabilities.

There are also important short-term adverse effects of EVA changes on MVA which underscores the challenges companies face in responding market's investors' expectations. While EVA has a positive long-term effect, the negative expectations could be a reflection of a company's inability to translate performance improvements into immediate increases in market value.

Moreover, there are short-term negative effects of changes in (EVA) on (MVA), underscoring the difficulties that companies face in responding to investors' expectations in the market. While EVA has a positive long-term effect, negative short-term expectations may reflect a company's inability to translate performance improvements into immediate increases in market value.

Traditional performance measures, such as ROE and ROA, were also determined to have a more significant role in determining MVA than their counterparts EVA. These conclusions reinforce those of Lulu (2016) and reflect investors' preference in the Amman Stock Exchange for these traditional indicators when making financial investment decisions. Consequently, understanding of these measures should be enhanced to ensure that it can help effectively to company valuation improvement and in enhancing the company's attractiveness in the market.

Based on the findings of this study, this study recommends the promotion of traditional performance measures by companies and regulatory bodies while continuing to focus on improving ROA and ROE, given their noticeable impact on MVA. Companies' Greater attention should be also given to disclosures of modern performance indicators represented by EVA and MVA within their financial reports to ensure they have the same level of importance as traditional indicators.

Performance expectations should be improved to ensure the positive impact of these values. Raising investor awareness and using a diverse set of performance indicators, including EVA, are essential for achieving a more accurate assessment of company attractiveness.

Future studies could include companies from various sectors and diverse analytical methods can be used to enhance understanding of the relationship between modern and traditional performance measures and MVA.

Funding: This study received no specific financial support.
Institutional Review Board Statement: Not applicable.
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Data Availability Statement: The corresponding author can provide the supporting data of this study upon a reasonable request.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: Both authors contributed equally to the conception and design of the study. Both authors have read and agreed to the published version of the manuscript.

REFERENCES

Al Mamun, A., Entebang, H., & Mansor, S. A. (2012). EVA as superior performance measurement tool. *Modern Economy*, *3*(3), 310-318. http://dx.doi.org/10.4236/me.2012.33041

Allal, B. E. N. T. A. B. E. T. (2021). Measuring and evaluating financial performance using modern and traditional indicators and studying their effectiveness in creating value: A case study of the Saidal complex during the period 2009-2019. *DJEI*, *12*(1). https://doi.org/10.34118/djei.v12i1.1143

Alshehadeh, A. R., Elrefae, G., & Injadat, E. (2022). Influence of traditional performance indicators on economic added value: Evidence from insurance companies. *Corporate Governance and Organizational Behavior Review*, *6*(4), 18-27. https://doi.org/10.22495/cgobrv6i4art2

Alsoboa, S. S. (2017). The influence of economic value added and return on assets on created shareholders value: A comparative study in Jordanian public industrial firms. *International Journal of Economics and Finance*, *9*(4), 63-78. https://doi.org/10.5539/ijef.v9n4p63

Altaweel, N., & Mhna, M. (2019). The relationship between traditional performance metrics and market value: A comprehensive review. *International Journal of Financial Studies*, *7*(3), 45–59.

Biddle, G. C., Bowen, R. M., & Wallace, J. S. (1998). Economic value added: Some empirical EVAdence. *Managerial Finance*, *24*(11), 60-71.

Brigham, E. F. (2016). *Financial management: Theory and practice*. Toronto, Canada: Cengage Learning Canada Inc.

Bromwich, M., & Walker, M. (1998). Residual income past and future. *Management Accounting Research*, *9*(4), 391-419. https://doi.org/10.1006/mare.1998.0091

De Wet, J. (2005). EVA versus traditional accounting measures of performance as drivers of shareholder value-A comparative analysis. *Meditari: Research Journal of the School of Accounting Sciences*, *13*(2), 1-16. https://journals.co.za/doi/pdf/10.10520/EJC72505

Enders, W. (2015). *Applied econometric time series* (4th ed.). New York: University of Alabama.

Fayed, A. M., & Dubey, S. (2016). An empirical study of the impact of EVA momentum on shareholders value creation compared to traditional financial performance measures: Special reference to the UAE. *International Journal of Economics and Finance*, *8*(5), 23-38. https://doi.org/10.5539/ijef.v8n5p23

Harutyunyan, G., & Badalyan, I. (2023). Economic value added (EVA) and its calculation features in banks. *Messenger of ASUE*, *3*(75), 5-22.

Jahankhani, A., & Sohrabi, J. (2010). An analytical survey of inflation distortions to economic value added and the firm's financial characteristics. *Financial Research Journal*, *12*(29), 1-20.

Kadar, K., & Rikumahu, B. (2018). *Relationship analysis between EVA, EPS, ROA, ROE on MVA for measuring financial performance: Case study on telecommunication companies listed in IDX 2011–2016*. Paper presented at the Proceedings of the 3rd International Conference on Transformation in Communications 2017 (IcoTiC 2017) (pp. 276–279).

Kashmiri, A. A. (2020). The economic value added index to evaluate the companies listed in the Saudi stock market: Case study of the basic materials companies sector. *Arab Journal of Scientific Publishing*, *23*, 203-225. https://2u.pw/37vZHUcx

Kim, W. G. (2006). EVA and traditional accounting measures: Which metric is a better predictor of market value of hospitality companies? *Journal of Hospitality & Tourism Research*, *30*(1), 34-49. https://doi.org/10.1177/1096348005284268

Lehn, K., & Makhija, A. K. (1997). EVA, accounting profits, and CEO turnover: An empirical examination, 1985–1994. *Journal of Applied Corporate Finance*, *10*(2), 90-97. https://2u.pw/Q00TnBcV

Lovata, L. M., & Costigan, M. L. (2002). Empirical analysis of adopters of economic value added. *Management Accounting Research*, *13*(2), 215-228. https://doi.org/10.1006/mare.2002.0181

Lulu, S. M. (2016). *The ability of economic value added indicator versus traditional performance measuring tools to explain the change in the market value of stocks an empirical study of companies listed with Palestine exchange*. Master's Thesis, Islamic University, Gaza.

Maqbel, A. (2010). Modeling financial performance: A new approach to measuring and evaluating corporate profitability. *International Journal of Economics and Finance*, *2*(2), 50–61.

Mousa, G., Sági, J., & Zéman, Z. (2021). Criticism of traditional performance metrics: Residual income and accounting-based returns in evaluating true economic returns. *Journal of Accounting and Economics*, *72*(1), 78–95. https://doi.org/10.1016/j.jacceco.2021.101359

Nakhaei, H., Abdul Hamid, N. I. N., & Anuar, M. A. (2013). Evaluation of company performance with accounting and economic criteria in Bursa Malaysia. *Journal of Global Business & Economics*, *6*(1), 49-63.

Nakhaei, H., & Hamid, N. I. N. B. (2013). *The relationship between economic value added, return on assets and return on equity with market value added in the Tehran Stock Exchange (TSE)*. Paper presented at the Proceedings of Global Business and Finance Research Conference (Vol. 16, No. 11, pp. 1-9).

Noravesh, I., & Mashayekhi, B. (2004). Incremental information content of economic value added (EVA) and cash value added (CVA) beyond accounting profit (AP) and operational cash flow (OCF). *Financial Research*, *6*(17), 131-150.

Omneya, A.-K., Ashraf, S., & Eldin, B. B. (2021). Financial performance appraisal using economic values added in emerging markets: Evidence from Egyptian listed firms. *Open Journal of Social Sciences*, *9*(03), 415.

Oreshkova, H. (2020). Capitalization of borrowing costs: The philosophy of the international financial reporting standards compared to the generally accepted accounting principles of the United States. *KNOWLEDGE-International Journal*, *38*(1), 23-31.

Paula, D. A., & Elena, D. C. (2009). *EVA versus traditional accounting measures of performance as drivers of shareholder value: A comparative analysis*. Retrieved from https://umfst.ro/

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, *16*(3), 289-326.

Priatna, H. N., & Darmansyah, A. (2024). *Impact of financial performance and economic value added (EVA) On stock returns before and after the COVID-19 Pandemic: A case study of telecommunications companies listed on IDX*. Retrieved from https://2u.pw/x3Gtyj4Ep

Qwader, A. (2022). Market concentration and market share's effects on the financial performance of Jordanian banks. *International Journal of Academic Research in Business and Social Sciences*, *12*(11), 2317-2333.

Qwader, A. S. (2024). Analyzing the impact of quality of public governance on the market value of companies listed on the Amman stock exchange. *International Journal of Economics and Financial Issues*, *14*(1), 28-38. https://doi.org/10.32479/ijefi.15371

Rasool, N., Ullah, S., Hussain, M. M., & Usman, M. (2021). Role of value added and conventional accounting measures in stimulating stock market returns: A study of non-financial sector listed at Pakistan stock exchange. *Journal of Accounting and Finance in Emerging Economies*, *7*(1), 217-232.

Sabol, A., & Sverer, F. (2017). A review of the economic value added literature and application. *UTMS Journal of Economics*, *8*(1), 19-27. https://doi.org/10.20308/UTMS.JE.2017.38

Saifi, M., & Benammara, H. (2015). Reformulating financial performance equations: A new approach to evaluating corporate efficiency and profitability. *International Journal of Business and Management*, *10*(3), 95–110.

Shah, R., Haldar, A., & Nageswara Rao, S. (2015). Economic value added: Corporate performance measurement tool. *Corporate Board*, *11*(1). https://ssrn.com/abstract=2607437

Sharma, A., & Kumar, S. (2012). EVA versus convenational performance measures-empirical evidence from India. *ASBBS Proceedings*, *19*(1), 804.

Stewart, G. B. (1991). *The quest for value: A guide for senior managers*. New York: Harper Business.

Subedi, M., & Farazmand, A. (2020). Economic value added (EVA) for performance evaluation of public organizations. *Public Organization Review*, *20*, 613-630. https://doi.org/10.1007/s11115-020-00535-9

Vijayakumar, A. (2012). Economic value added (EVA) and other accounting performance indicator: An empirical analysis of Indian automobile industry. *International Journals of Marketing and Technology*, *2*(3), 131-153.

Yaman, K., & Topal, S. (2024). Effect of EVA, CFROI, MVA and CVA methods on shareholders value Maximization and financial performance estimation: An empirical study. *Journal of Applied And Theoretical Social Sciences*, *6*(3), 247-263. https://doi.org/10.37241/jatss.2024