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Value Creation and Market Perception in the Construction Sector: Adjusted EVA and MVA Analysis

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ABSTRACT

Purpose – This study aims to assess the financial performance of firms listed in Borsa Istanbul's Construction and Public Works sector through the calculation of adjusted Economic Value Added (EVA) and Market Value Added (MVA). In this context, the association between the value created by these companies and their market values is examined.

Design/methodology/approach – In the study, adjusted EVA and MVA values for the 2022–2024 period were calculated using the financial data of the relevant firms, and the relationships between these indicators and Market Value (MV) were tested through statistical analyses.

Results – The results indicate that negative EVA values prevail across the sector, suggesting that most firms have been unable to cover their cost of capital. While a strong relationship was observed between MVA and Market Value (MV) in the first year, a negative and statistically significant relationship was found between EVA and MV for all years. However, no significant relationship was identified between EVA and MVA.

Discussion – The findings reveal that investor behavior does not always align with companies' internal performance indicators. This indicates that relying solely on a single metric in the evaluation of financial performance may be insufficient. On the other hand, the findings of the study show both similarities and differences compared to previous research. These differences may stem from sectoral and regional dynamics as well as variability in investor perceptions. Thus, this study reveals that financial performance indicators can carry different meanings depending on the sectoral context, and that contextual factors should be taken into account when interpreting these indicators.

1. Introduction

In today's economic era, there is considerable pressure and personal incentive for managers to present misleading financial reports (Gomez-Mejia & Balkin, 1992). Many companies manipulate their earnings figures to present deceptive financial statements, leading investors to rely on these unrealistic numbers when making investment decisions. As a result, the company's stock turnover may increase in the short term; however, share prices are likely to decline in the near future, ultimately causing investors to incur losses. Therefore, it is essential to ensure that investors can accurately understand the true value of companies and that accounting fraud is minimized.

A range of methods has been developed to assess how effectively companies perform, typically categorized into conventional metrics and value-focused evaluation tools. Among the value-based criteria, Economic Value Added (EVA) and its complementary measure, Market Value Added (MVA), are value creation assessment techniques developed by the consulting firm Stern Stewart & Co. (Stern et al., 1995; Silvia & Wangka, 2022). The EVA component focuses more on the added value generated by the company's investments, while MVA reflects how effectively a company utilizes its resources and the extent to which it enhances shareholder wealth (Nazar & Dwiarso, 2023).

As a major contributor to Türkiye's economic development, the construction industry significantly impacts macroeconomic trends and has a broad influence on various other sectors. In developing countries like Türkiye, this sector holds strategic importance for ensuring sustainable economic growth. With its capacity to generate employment, the sector offers a wide range of job opportunities for both skilled and unskilled labor. The construction industry in Türkiye is characterized by dynamic features such as high capital requirements,

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long project cycles, and public–private partnerships. Relying solely on traditional profitability indicators in the financial analysis of the sector may not fully reflect firms' ability to generate sustainable value. In this context, the use of value-based metrics such as EVA and MVA enables a more realistic assessment of the financial health and capital efficiency of firms operating in the sector. In the literature, while the relationships among EVA, MVA, and MV have been examined in many sectors, it has been observed that the use of Adjusted EVA remains limited in studies conducted within the scope of the BIST construction sector. In this context, the study aims to analyze the financial performance of BIST Construction Sector companies, which are of great importance for the Turkish economy during the 2022-2024 period characterized by high economic fluctuations and inflation, through the criteria of Adjusted EVA and MVA. Additionally, by comparing the findings obtained from these criteria with the market values (MV) of the companies, the study reveals its original value by determining the level of alignment between financial performance indicators and investors' market perception.

The subsequent parts of this study detail the EVA and MVA methodologies and include a literature overview. Subsequently, an empirical analysis is conducted on the BIST construction sector, and the findings are presented. In the conclusion section, the findings are interpreted and evaluated.

2. Adjusted Economıc Value Added (Eva) and Market Value Added (MVA)

EVA is a financial performance indicator that measures the value a company creates or loses within a given year. It is used to assess the extent to which investors are compensated for the risk they undertake. EVA is derived by offsetting the Net Operating Profit After Taxes (NOPAT) against the cost of capital employed. (Abate, 2004: 62). Mathematically, invested capital is equivalent to Net Operating Assets (NOA) (Jankalová & Kurotová, 2020: 6).

Basic EVA is calculated based on the net profit for the period as reported in a company's financial statements. However, this calculation may overlook several important factors. Accounting methods can sometimes distort financial data, leading to inaccuracies in assessing a company's actual performance. In contrast, adjusted EVA involves modifications to accounting data to make the metric economically meaningful (Shil, 2009: 169). This allows for a clearer reflection of the firm's actual economic performance. In adjusted EVA, items that reduce accounting profit but do not involve actual cash outflows, such as depreciation, are added back to profit since they do not impact cash flow. Similarly, non-cash revenues, which may increase profitability without generating actual cash inflow, are deducted from profit. Additionally, while financing expenses are added back to net profit, the tax provision corresponding to these expenses is recalculated and subtracted from the net profit (Türker, 2005: 139).

The formula for Adjusted EVA, which incorporates accounting adjustments, is as follows:

$$\textit{Adjusted EVA} = \textit{Adjusted NOPAT} - (\textit{NOA} \times \textit{WACC}) \quad (1)$$

Where:

- Adjusted NOPAT = Adjusted Net Operating Profit After Taxes
- NOA = Net Operating Assets (Amount of Invested Capital)
- WACC = Weighted Average Cost of Capital

When a company's adjusted EVA shows a positive result, this demonstrates that the firm has recovered its opportunity cost of capital and produced an excess return. A favorable EVA signals that the company is adding value. On the other hand, a negative EVA suggests that the company fails to meet the opportunity cost of capital, indicating it is not generating value.

MVA, on the other hand, is a performance indicator aimed at measuring a company's long-term value creation capacity. MVA quantitatively assesses how much economic value a company has generated for the capital supplied by shareholders and creditors through its efficient and effective utilization of that capital.

Stewart (1995: 82) states that MVA is not an alternative to EVA, but rather a complementary performance measure. MVA is a method that evaluates the effectiveness of capital utilization by measuring whether the company has added value to the funds contributed by investors and lenders. (Stewart, 1991: 184).

MVA can be expressed as the gap between a company's market capitalization and its total invested capital (Wet, 2005):

MVA = Market Value – Invested Capital (2)

EVA is a single-period performance measure calculated based on a company's accounting-based financial data and its estimated cost of capital. In contrast, MVA is a forward-looking, market-oriented indicator that reflects the company's valuation in the equity and debt markets and incorporates long-term performance expectations. In this context, although EVA and MVA theoretically complement each other, from the perspective of investor behavior and market perception, a consistently unidirectional relationship between the two indicators is not always observed (Demırgunes, 2023; Qwader & Alawneh, 2025). Particularly in capital-intensive industries with long project cycles, such as the construction sector; deviations in cash flow timing, the use of high leverage, and revenue uncertainty tied to progress payment processes can deepen the misalignment between intrinsic performance (EVA) and market value (MVA) (Panigrahi et al., 2014; Hall, 2016). From a behavioral finance perspective, investors can value stock prices independently of a company's fundamental performance indicators, depending on their expectations and sentiments (Baker & Wurgler, 2007). Similarly, it has been found that corporate reputation shapes investor perception (Blajer-Gołębiewska, 2024) and that firm value reflects not only financial performance but also perceptions regarding the firm's reputation and reliability (Sánchez-Iglesias et al., 2024).

3. Literature Review

Erem and Akyüz (2014) analyzed the relationship between MVA, EVA, and other performance indicators for firms operating in the BIST motor vehicles industry over the period 2003–2013 using the panel data method. Their analysis demonstrated a strong positive correlation between MVA and both EVA and earnings per share, whereas it identified a significant negative correlation between MVA and return on sales.

Panigrahi et al. (2014) investigated the association between EVA and MVA within Malaysian construction firms during the 2002–2013 period using correlation analysis. They found a strong negative correlation of 62.4% between EVA and MVA.

Aslam et al. (2015) examined the performance of 35 companies belonging to seven different industries in Pakistan during 2012 and 2013 using multiple regression analysis with EVA and MVA. Their findings indicated that EVA did not have a statistically significant explanatory power over MVA.

Altan and Karahan (2016) calculated firm values for five companies from each sector between 2010 and 2014 using free cash flow to the firm (FCFF), free cash flow to equity (FCFE), and EVA methods. They concluded that EVA produced results closest to market value particularly in the energy, technology, and transportation sectors.

Bognárová (2017) explored the relationship between MVA and net profit, earnings per share, and EVA for Slovak companies during the 2010–2015 period using regression models. The results showed that EVA had a higher explanatory power for changes in MVA compared to net profit and earnings per share.

Chitsimran and Kaur (2018) measured the performance of cement companies in India by calculating their EVA and MVA. The overall findings indicated that most companies failed to generate positive EVA from their operations.

Saputra et al. (2019) evaluated the financial performance of firms in the paper industry between 2017 and 2018 using EVA and MVA. Their assessment revealed that, with the exception of one company, the others exhibited instability in both EVA and MVA values.

Akgün and Günay (2020) explored the association between EVA values and the market performance of shares of BIST Financial Index firms from 2008 to 2017 via panel regression. They found that EVA was significantly related to Earnings Per Share (EPS) and TOBIN's Q.

Choong and Muthaiyah (2021) analyzed the influence of EVA–MVA dynamics on the creation of shareholder value for companies on the Malaysian stock exchange in the 2007–2016 timeframe. The results indicated a statistically significant association between EVA and MVA for Malaysian firms.

Florence and Soenano (2022) examined the influence of the Coronavirus pandemic on the operations of a total of 150 publicly listed healthcare companies in Indonesia, Malaysia, and Singapore, along with the effects of EVA and Cash Value Added (CVA) on company performance. Based on the multiple regression analysis conducted, EVA and CVA were found to have a positive and significant impact on MVA, while no meaningful difference was observed in MVA values prior to and throughout the pandemic.

Udiyana et al. (2022) analyzed the effect of EVA and MVA on the stock performance of firms in the construction sector during the 2015–2019 period through multiple linear regression. The findings of the study showed that EVA and MVA together exert a statistically meaningful influence on stock returns; however, when considered individually, only MVA demonstrated a meaningful effect on stock returns, whereas EVA did not show any statistically significant contribution.

Nazar and Dwiarso (2023) employed panel data analysis to examine the extent to which EVA and MVA explain fluctuations in banking stock prices over the 2018–2021 period. The results indicated that, while EVA and MVA collectively influence stock prices, only MVA was found to have a statistically significant individual impact.

Strelnik et al. (2023) examined financial control indicators integrated into Enterprise Resource Planning (ERP) systems; based on a regression analysis conducted with approximately 600 electricity companies, it was concluded that EVA shows a high correlation with MVA and may serve as a key indicator for measuring the effectiveness of financial control.

Alvioni and Prabawa (2024) analyzed the financial outcomes of firms operating in the telecommunications industry during the 2018–2022 period using EVA and MVA approaches. They found that the majority of the sector created economic value and increased shareholder wealth, although some companies were unable to generate value based on either indicator.

Oke and Ajeigbe (2024) investigated the extent to which accounting-derived measures and value-based indicators collectively influence firm performance and value, utilizing causality testing and variance decomposition across a sample of 61 firms for the period 2011–2020. Overall, the causality test did not reveal any meaningful association between EVA and MVA. The variance decomposition results showed that MVA and EVA contributed approximately 35.96% and 0.51%, respectively, to the forecast of future stockholder returns. The study also concluded that both accounting variables and value-centered management indicators serve as effective approaches for evaluating firm performance.

Ikhsan, Usmany, and Putuhena (2025) measured EVA-and MVA-based performance for 12 technology companies during the 2020–2022 period. Although all companies had positive EVA values, only 10 of them had positive MVA values.

Kumar et al. (2025) employed multiple regression analysis to determine the most effective performance indicators among selected variables for companies in the Indian manufacturing sector during the period 2013–2022. The study found a positive association between stock returns and both EVA and MVA.

Qwader and Alawneh (2025) investigated the association between EVA, MVA, and conventional performance indicators by employing multiple regression analysis on a sample of 19 industrial companies listed on the Amman Stock Exchange over the years 2002–2023. The results indicated a sustained positive correlation among MVA, EVA, and traditional metrics, while also demonstrating that conventional indicators had greater explanatory power than EVA in predicting MVA. In addition, it was found that changes in EVA had short-term negative effects on MVA.

4. An Application on Companies in the Bist Construction Sector

4.1 Scope of the Study and Data Set

The study covers the years 2022–2024 and focuses on firms included in the Borsa Istanbul Construction Index. Within this scope, the firms included in the BIST Construction Index, along with their codes, are presented in Table 1.

Table 1. Firms Covered by the Research

No	Company Code	Company Name
1	AKFIS	Akfen İnşaat Turizm ve Ticaret A.Ş.
2	ANELE	Anel Elektrik Proje Taahhüt ve Ticaret A.Ş.
3	BRLSM	Birleşim Müh. Isıtma Soğ. Hav. San. ve Tic. A.Ş.
4	DAPGM	Dap Gayrimenkul Geliştirme A.Ş.
5	EDIP	Edip Gayrimenkul Yatırım San. ve Tic. A.Ş.
6	ENKAI	Enka İnşaat ve Sanayi A.Ş.
7	GESAN	Girişim Elektrik Sanayi Taahhüt ve Ticaret A.Ş.
8	GLRMK	Gülermak Ağır Sanayi İnşaat ve Taahhüt A.Ş.
9	KUYAS	Kuyaş Yatırım A.Ş.
10	ORGE	Orge Enerji Elektrik Taahhüt A.Ş.
11	SANEL	Sanel Müh. Elektrik Taahhüt San. ve Tic. A.Ş.
12	TURGG	Türker Proje Gayrimenkul ve Yat. Gel. A.Ş.
13	YAYLA	Yayla Enerji Üretim Turizm ve İnşaat Ticaret A.Ş.
14	YYAPI	Yeşil Yapı Endüstrisi A.Ş.

Among the companies listed in the BIST Construction Index, AKFIS, DAPGM, and GLRMK were excluded from the scope of the study due to missing data. Accordingly, the adjusted EVA and MVA values of the remaining 11 companies were calculated. Between 2018 and 2022, companies' net operating profit, invested capital, and cost of debt were calculated using data from their financial statements and footnotes. The 2-year government bond interest rate, stock market return, stock returns, and market values were obtained from https://www.investing.com/, and the beta coefficient was calculated based on these data.

4.2. Computation of Adjusted EVA Variables

The initial step in computing EVA is to accurately determine the after-tax earnings generated from the companies' operating activities. One of the key variables used in this context is the Adjusted Net Operating Profit After Taxes (Adjusted NOPAT), which includes not only the net profit for the period, but also certain adjustment items recorded in the accounting system that affect operational performance. The Adjusted NOPAT value was calculated using the following formula (Yılmaz & Bastı, 2013: 89):

$$\textit{Adjusted NOPAT} = \textit{Net Profit} + \textit{Depreciation Expense} + \textit{Financing Expense} \times (1 - \textit{Corporate Tax Rate}) \quad (3)$$

The Adjusted NOPAT values were derived according to the formula above and are presented comparatively in Table 2.

Table 2. Adjusted NOPAT Values

Company	2022	2023	2024
ANELE	534.346.328	722.620.979	95.478.155
BRLSM	-139.001.298	-224.770.789	575.571.653
EDIP	1.329.432.949	2.833.240.559	1.251.411.659
ENKAI	4.310.338.410	21.108.157.000	33.268.409.084
GESAN	1.014.674.130	1.849.181.750	2.290.924.770
KUYAS	-57.322.340	207.202.167	336.279.840
ORGE	170.905.131	398.289.787	850.758.986
SANEL	-12.172.329	4.489.192	46.071.544
TURGG	416.286.918	220.252.850	68.849.959
YAYLA	86.465.987	84.266.093	-62.263.588
YYAPI	489.263.827	1.050.777.710	696.884.438

Another key component of EVA analysis is Net Operating Assets (NOA), a financial indicator that reflects the assets allocated to a company's operational activities. NOA aims to measure the assets directly involved in the company's core operations by excluding non-operational components. The NOA values of the companies

within the scope of the analysis were calculated using the following formula (Akyüz, 2013: 344; Kuğu & Kırlı, 2016: 174):

NOA = Current Assets – Short-Term Liabilities + Non-Current Assets (4)

The NOA values derived using this formula are shown in a comparative format in Table 3.

Table 3. NOA Values

Company	2022	2023	2024
ANELE	3.146.357.777	5.668.721.798	3.547.328.418
BRLSM	993.620.063	969.856.271	1.503.990.139
EDIP	3.245.677.142	5.552.090.681	6.423.218.862
ENKAI	132.733.312.000	235.136.680.000	339.579.038.763
GESAN	5.301.283.000	14.011.538.000	16.902.310.446
KUYAS	1.166.965.209	1.978.448.065	2.483.736.806
ORGE	1.275.227.258	2.270.471.765	3.443.267.322
SANEL	35.719.332	22.369.523	126.294.355
TURGG	1.111.888.537	2.004.462.089	2.307.442.201
YAYLA	415.983.392	747.524.009	740.835.962
YYAPI	1.913.509.286	3.831.855.238	5.432.942.297

One of the core aspects of EVA analysis is the Weighted Average Cost of Capital (WACC), representing the blended expense of financing the company's activities through equity and debt. The WACC value was calculated using the following basic formula (Gümüş & Taşdemir, 2016: 17; Türker, 2005: 134; Yılmaz & Bastı, 2013: 86):

WACC = [(Debt / Total Capital)×Cost of Debt ×(1 - Corporate Tax Rate)]+[(Equity / Total Capital)×Cost of Equity] (5)

The sub-formulas used to calculate the variables in the above formula are as follows:

Debt / Total Capital = (Short-Term Liabilities + Long-Term Liabilities) / (Current Assets + Non-Current Assets) (6)

Cost of Debt = [(Short-Term Financial Debt × Short-Term Interest Rate) + (Long-Term Financial Debt × Long-Term Interest Rate)] / (Short-Term Financial Debt + Long-Term Financial Debt) (7)

Equity / Total Capital = Equity / (Current Assets + Non-Current Assets) (8)

Cost of Equity = Risk-Free Rate + Market Risk Premium × Beta Coefficient (9)

The subcomponents of the cost of equity are determined as follows:

Risk-Free Rate = Average Interest Rate on 2-Year Government Bonds (10)

Market Risk Premium = Average Market Return – Average Interest Rate on 2-Year Government Bonds (11)

Beta Coefficient = Covariance of Market Return and Stock Return / Variance of Market Return (12)

The values in the Beta coefficient formula were calculated by taking the average of the monthly data for each year. The firm-specific WACC values calculated based on the formulas above are presented comparatively in Table 4.

Table 4. WACC Values

Company	2022	2023	2024
ANELE	0,3963	0,1300	0,1381
BRLSM	0,8128	0,2576	0,3494
EDIP	0,8405	0,5763	0,2064
ENKAI	1,2461	0,2578	0,2863
GESAN	0,8686	0,3165	0,2940
KUYAS	1,3504	0,2786	0,3912
ORGE	1,2616	0,2989	0,2538
SANEL	0,1794	0,3545	0,3783
TURGG	0,5619	0,2615	0,2655
YAYLA	0,3691	0,3682	0,1772
YYAPI	1,6863	0,1895	0,1689

The Adjusted EVA values for each year were calculated by substituting the NOPAT, NOA, and WACC values of the firms included in the analysis into the relevant formula (NOPAT – [NOA x WACC]). Subsequently, the firms were ranked based on the economic value added they generated, and the results are presented in Table 5.

Table 5. Adjusted EVA Values and Rankings

No	2022	2023	2024
1	SANEL	YYAPI	BRLSM
	-18.579.127	324.618.914	50.033.558
2	YAYLA	SANEL	SANEL
	-67.059.318	-3.441.621	-1.700.332
3	TURGG	ANELE	ORGE
	-208.431.853	-14.401.611	-23.125.092
4	ANELE	YAYLA	EDIP
	-712.548.787	-190.982.901	-74.195.394
5	BRLSM	ORGE	YAYLA
	-946.616.269	-280.357.298	-193.547.722
6	EDIP	TURGG	YYAPI
	-1.398.634.083	-303.864.755	-220.943.057
7	ORGE	KUYAS	ANELE
	-1.437.957.542	-344.037.428	-394.407.007
8	KUYAS	EDIP	TURGG
	-1.633.246.734	-366.154.334	-543.877.288
9	YYAPI	BRLSM	KUYAS
	-2.737.501.061	-474.640.044	-635.262.999
10	GESAN	GESAN	GESAN
	-3.590.150.462	-2.586.142.854	-2.678.397.870
11	ENKAI	ENKAI	ENKAI
	-161.090.290.223	-39.517.963.980	-63.958.817.438

According to the data presented in Table 5, all firms operated with negative EVA values in 2022. During this year, SANEL demonstrated the best performance with the lowest negative EVA, while GESAN and ENKAI ranked at the bottom of the list with significantly high negative EVA values. As of 2023, YYAPI became the only company to create economic value by achieving a positive EVA value. Nevertheless, a relative improvement trend was observed in most companies compared to the previous year, except for TURGG and

YAYLA. In 2024, only BRLSM managed to obtain a positive EVA, thus creating economic value and rising to the top of the ranking. In the same period, EDIP, ORGE, and SANEL stood out among the companies that showed notable improvement. On the other hand, it was found that GESAN and ENKAI consistently exhibited the lowest EVA performance in the sector over the three-year period. When a trend analysis is conducted over the years, a clear upward trend in EVA values can be observed for BRLSM, EDIP, ORGE, and SANEL, while a downward trend dominates for TURGG and YAYLA. Meanwhile, companies such as ANELE, ENKAI, GESAN, KUYAS, and YYAPI were observed to have exhibited a fluctuating performance.

4.3. Calculation of Market Values (MV) and Market Value Added (MVA)

Over the three-year span from 2022 to 2024, the construction companies operating in Türkiye were ranked based on their Market Values (MV), and the relevant results are presented in Table 6.

Table 6. Market Values and Rankings of the Companies

No	2022	2023	2024
1	ENKAI 193.900.000.000	ENKAI 199.300.000.000	ENKAI 284.900.000.000
2	GESAN 27.381.000.000	GESAN 30.636.000.000	GESAN 21.703.000.000
3	BRLSM 3.069.000.000	BRLSM 5.242.000.000	KUYAS 7.608.000.000
4	KUYAS 2.642.000.000	KUYAS 5.093.000.000	ORGE 6.872.000.000
5	TURGG 2.363.000.000	ORGE 4.960.000.000	ANELE 4.229.000.000
6	ORGE 2.120.000.000	TURGG 3.350.000.000	TURGG 3.913.000.000
7	ANELE 1.177.000.000	ANELE 3.244.000.000	BRLSM 3.347.000.000
8	YYAPI 826.600.000	YYAPI 955.300.000	YYAPI 1.960.000.000
9	EDIP 815.800.000	EDIP 949.600.000	EDIP 1.400.000.000
10	SANEL 417.700.000	SANEL 456.400.000	YAYLA 987.000.000
11	YAYLA 328.700.000	YAYLA 319.200.000	SANEL 425.700.000
Toplam	235.040.800.000	254.505.500.000	337.344.700.000

According to Table 6, in general, most companies showed an upward trend in their market values from 2022 to 2024. The total market value of the sector increased from 235 billion TRY in 2022 to 337 billion TRY in 2024, marking a 43% rise. The companies with the highest market values over the three-year period were ENKAI, GESAN, and KUYAS. The market values of BRLSM, GESAN, and SANEL followed a fluctuating trend. ENKAI is the company with the highest market value by far. On the other hand, YAYLA, SANEL, and EDIP had the lowest market values throughout the three-year period.

MVA, which is an important indicator for measuring companies' financial performance and the value they provide to investors, was calculated based on the gap between the firm's MV and its invested capital (NOA). The MVA values of the companies were determined and compared on a yearly basis, as presented in Table 7.

Table 7. Market Value Added and Rankings

No	2022	2023	2024
1	ENKAI 61.166.688.000	GESAN 16.624.462.000	KUYAS 5.124.263.194
2	GESAN 22.079.717.000	BRLSM 4.272.143.729	GESAN 4.800.689.554
3	BRLSM 2.075.379.937	KUYAS 3.114.551.935	ORGE 3.428.732.678
4	KUYAS 1.475.034.791	ORGE 2.689.528.235	BRLSM 1.843.009.861
5	TURGG 1.251.111.463	TURGG 1.345.537.911	TURGG 1.605.557.799
6	ORGE 844.772.742	SANEL 434.030.477	ANELE 681.671.582
7	SANEL 381.980.668	YAYLA -428.324.009	SANEL 299.405.645
8	YAYLA -87.283.392	ANELE -2.424.721.798	YAYLA 246.164.038
9	YYAPI -1.086.909.286	YYAPI -2.876.555.238	YYAPI -3.472.942.297
10	ANELE -1.969.357.777	EDIP -4.602.490.681	EDIP -5.023.218.862
11	EDIP -2.429.877.142	ENKAI -35.836.680.000	ENKAI -54.679.038.763

According to Table 7, KUYAS, ORGE, and TURGG consistently exhibited positive MVA values over the three-year period and generally increased their MVA. EDIP and YYAPI, on the other hand, consistently showed negative values with a downward trend. Although BRLSM, GESAN, and SANEL had positive MVA values, they experienced a declining trend in recent years. ANELE and YAYLA transitioned from negative MVA to positive MVA in 2024. ENKAI, despite having the highest market value added in 2022, suffered substantial declines in the following years and shifted from a positive to a negative MVA.

4.4. Spearman Correlation Analysis

Spearman correlation analysis is a statistical technique that evaluates the strength and direction of the association between two variables in cases where the relationship is non-linear. Due to the small sample size within the scope of the study, the presence of outliers in the data, and the lack of normal distribution, this non-parametric method was preferred to determine the relationship between EVA, MVA, and MV. The analysis was conducted using the SPSS 27 software package. The findings are presented in Table 8.

Table 8. Correlation Coefficients Between Variables

		2022	2023	2024
EVA-MVA	Corr. Coeff.	-0,464	-0,209	-0,027
	Sig.	0,151	0,537	0,937
EVA-MV	Corr. Coeff.	-0,682*	-0,764**	-0,727*
	Sig.	0,021	0,006	0,011
MVA-MV	Corr. Coeff.	0,855**	0,373	0,364
	Sig.	0,000	0,259	0,272

* indicates significance at $p < 0.05$, ** at $p < 0.01$

During the 2022–2024 period, the analysis revealed no statistically significant association between EVA and MVA. However, a significant and negative (i.e., inversely proportional) relationship was identified between EVA and MV in all three periods. While there was a very strong and significant positive relationship between MVA and MV in 2022, this relationship weakened and lost its significance in the following years.

Among the companies within the scope of the analysis, ENKAI's MV and EVA values significantly diverge from the other firms. Therefore, to evaluate whether the results were influenced by a large-scale firm, the analysis was repeated by excluding ENKAI from the dataset.

Table 9. Sensitivity Analysis

		2022	2023	2024
EVA-MVA	Corr. Coeff.	-0,285	-0,612	-0,370
	Sig.	0,425	0,060	0,293
EVA-MV	Corr. Coeff.	-0,576	-0,685*	-0,636*
	Sig.	0,082	0,029	0,048
MVA-MV	Corr. Coeff.	0,806**	0,818**	0,830**
	Sig.	0,005	0,004	0,003

* indicates significance at $p < 0.05$, ** at $p < 0.01$

The exclusion of ENKAI preserved the fundamental trends but rendered the relationship between MVA and MV significant and strong for all years. The negative relationship between EVA and MV persisted in a weakened state, while EVA–MVA remained insignificant in both analyses. This situation demonstrated that a large-scale firm like ENKAI can particularly influence the relationship between MVA and market value, yet the core directions of the relationships between variables were largely maintained.

5. Conclusion and Discussion

Investors and other stakeholders benefit from indicators such as EVA, which measures economic profit, market value added (MVA), which reflects future expectations, and market values (MV), which shows market perception, in order to evaluate the financial performance of companies. In this study, the EVA and MVA values of firms operating in Turkey's construction sector for the 2022–2024 period were calculated and their financial performances were comprehensively analyzed. The findings were then compared with the companies' market values, and the relationships among these variables were empirically investigated.

As a result of the calculations made, a significant portion of the sector produced negative EVA throughout the 2022–2024 period, and 2022, in particular, when all firms remained below the cost of capital, was the weakest period. GESAN and ENKAI consistently ranked as the lowest-performing companies over all three years. While BRLSM, EDIP, ORGE, and SANEL steadily increased their EVA values, ANELE, ENKAI, GESAN, KUYAS, and YYAPI displayed volatile performance. This reflects the fragility of the sectoral structure and the financial sustainability challenges faced by these companies. Nevertheless, the upward trend in EVA for some firms suggests the presence of recovery potential. It is crucial for underperforming companies to pursue structural reforms and adopt value-oriented strategies.

When examining the trend in the market values (MV) of companies within the sector, it is evident that the construction industry experienced overall growth from 2022 to 2024. Investor interest in the sector remained strong, and demand for company shares increased. ENKAI and GESAN maintained their leadership in terms of MV despite having negative EVA values. This situation can be explained by MV being influenced by perceptual factors such as scale, trust, and brand value, rather than intrinsic financial performance. Companies such as EDIP and ORGE improved their MV alongside rising EVA figures. Although BRLSM generated a positive EVA in 2024 and ranked highly, its MV exhibited a volatile pattern. This may imply that the positive change in EVA has not yet been fully priced in by the market.

In terms of MVA, despite ENKAI's high market value, its EVA and MVA values deteriorated. While KUYAS, TURGG, and ORGE showed upward trends in their MVA and MV, their EVA trends differed. BRLSM and SANEL exhibited fluctuating MVA and MV, yet their EVA values showed an improving trend. YAYLA showed instability in its MVA and MV while displaying a declining EVA. In GESAN and EDIP, while MVA declined, inconsistencies were observed among the other indicators. ANELE and YYAPI demonstrated uncertain trends across all three metrics, indicating a lack of clear direction in performance.

As a result of the Spearman correlation analysis conducted to determine the associations between EVA, MVA, and MV, no statistically meaningful association was found between EVA and MVA. However, a meaningful and negative association was identified between EVA and MV. On the other hand, the relationship between

MVA and MV was strong and significant in 2022, but it lost both its significance and strength in the following years.

The findings obtained contain both similarities and differences when compared to previous studies in the literature. Indeed, Chitsimran and Kaur (2018) and Saputra et al. (2019) revealed that firms operating in certain sectors were unable to generate positive EVA, while Alvioni and Prabawa (2024) noted that some companies were inadequate in creating value in terms of both EVA and MVA. The lack of a statistically significant association between EVA and MVA in this study is consistent with the findings reported by Aslam et al. (2015) and Oke and Ajeigbe (2024). On the other hand, some studies (Choong and Muthaiyah, 2021; Bognárová, 2017) presented differing results, indicating that EVA has a meaningful and positive effect on MVA.

The findings of this study indicate that the relationship between EVA, MVA, and MV is complex, that multiple factors should be considered in financial performance evaluation, and that, contrary to the Efficient Market Hypothesis, behavioral finance elements may also be influential. Definitive conclusions should not be drawn without taking non-accounting factors and other relevant information into account. Indicators and analytical methods used in assessing financial performance provide valuable insights, yet they also come with various limitations. EVA, as it relies on conventional accounting systems, may be calculated using outdated data, making it challenging to capture a company's true economic value. Nevertheless, because EVA is based on financial fundamentals, it tends to offer a more reliable indication of a company's long-term value creation capacity. On the other hand, since MVA reflects investor perception through market value, it is sensitive to short-term fluctuations in the markets and may not always accurately represent a company's actual financial performance. In this regard, while some companies may appear favorable in terms of MVA, their EVA values may reveal that such performance is not sustainable. Firms with high market value but declining EVA and MVA figures could pose potential risks for investors. Conversely, companies that show strong results in both EVA and MVA present a more positive picture in terms of financial soundness and investor confidence. Furthermore, MVA often produces higher results for large-scale companies due to their substantial market values; however, this does not imply that smaller firms fail to create value. Therefore, it should be noted that MVA may be biased toward firm size. For all these reasons, indicators like EVA and MVA should not be evaluated in isolation but rather analyzed together to achieve more comprehensive and accurate conclusions.

To successfully implement the EVA and MVA methods, companies can establish a dedicated EVA team responsible for identifying distortions in accounting profit and converting it into economic profit. Firms may also develop simulations based on performance data from recent years to determine the areas in which EVA, as a managerial tool, proves more effective than other methods. Additionally, companies can analyze points where other metrics show strong correlations and adopt a multi-indicator approach aligned with their management strategies. Value-based analyses such as EVA and MVA should be given greater prominence in sectoral reporting. Capital market boards and investor relations departments can enhance transparency by standardizing the disclosure of MVA/EVA data by companies.

In this study, the relationships between the variables were examined through correlation analysis. Since the dataset of the research covers only a three-year period and the number of observations is limited, methods such as multiple regression or panel data analysis were not applied. This situation is considered a methodological limitation of the study; in future research, the dataset can be expanded and advanced statistical methods such as multiple regression analysis, panel data analysis, or structural equation modeling may be employed. The relationships between market value and EVA/MVA can be analyzed in connection with investor perception. Elements such as investor confidence, perceived risk, and market reactions can be examined through the lens of behavioral finance theories.

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