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FINANCIAL PERFORMANCE EVALUATION OF COMPANIES USING TOPSIS APPROACH: A CASE STUDY OF PROPERTIES SECTOR IN MALAYSIA

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Abstract

The emergence of the property sector in Malaysia has been driven by the increasing of demand from consumers, reflecting the nation's economic growth. Therefore, this study aims to assess the financial performance and rank the financial performance of the listed property companies in Malaysia using TOPSIS model. The data of this study consists of Sime Darby Construction Berhad, S P Setia, Glomac Berhad, SkyWorld Development Berhad, LBS Bina Group Berhad are listed property companies in Malaysian stock market. The results of this study show that SkyWorld Development Berhad achieves the first ranking, followed by Sime Darby Property Berhad, Glomac Berhad, LBS Bina Group Berhad and S P Setia Berhad within the study period of the year 2023. This study is significant because it helps to evaluate, compare and rank the financial performance of the listed property companies in Malaysia with the proposed conceptual framework based on TOPSIS model.

Keywords: TOPSIS Method, Property sector, Financial performance indicators, Decision making, Investment

Introduction

The property sector in Malaysia is an important part of Malaysia that has contributed immensely to the economic growth employment opportunities and investment opportunities. As this sector continues to evolve amidst changing market dynamics and economic conditions, the evaluation of its financial performance becomes increasingly critical.

Based on study by [11], the liberalization of the Malaysian property sector has sparked a lot of interest in foreign investors. However, the influence of the COVID-19 pandemic affects to the property developers not only in Malaysia but also Indonesia has emerged a rising study area [5] . Additionally, a study from [7] also has explores the various shifts in the property market and the dynamics of the study subject emerged from the pandemic. Thus, embracing constant study and analysis of the property market also is instrumental in the fulfilment of the objectives of the current and potential stakeholders and investors. Hence, in the context of the financial performance evaluation, the most ideal method for this evaluation is the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) approach. TOPSIS is a decision-tool which aims to solve multi-criteria decision-making problem [2]. The application of TOPSIS for finding the financial performance in different sectors has been applied in various case studies, such as the selection of logistics providers, [1], supplier selection [10] and evaluation of financial institutions of commercial banks in India [3] that showcases the versatility and effectiveness of this method in diverse settings.

One of the main advantages of TOPSIS over other methods, such as Analytic Hierarchy Process

(AHP) or Data Envelopment Analysis (DEA), is its ability to provide a clear ranking of alternatives while considering both the shortest distance from the ideal solution and the farthest distance from the negative ideal solution. Unlike AHP, which can be subjective in assigning weights, or DEA, which focuses primarily on efficiency measurement, TOPSIS integrates multiple criteria and produces results that are straightforward and easy to interpret. Moreover, TOPSIS can handle complex decision-making environments, including group decision-making, multi-criteria evaluation, and human resource selection systems[4]. In a study of [8], the author compares the performance of manufacturing companies in the U.S. market the authors employed the TOPSIS technique using 11 financial ratios. Other than that, it also makes it easier to rank companies according to their financial performances that is enable comparisons between companies and create a structured way of evaluating performances [9]. Therefore, it is useful for property companies to calculate financial performance as they strategies on how best to cut costs and improve their performance in the face of rising competition.

Data and Methodology

The financial performance of the five listed property companies in 2023 was assessed using ten financial ratios covering liquidity, leverage, profitability, market standing, and efficiency. Beneficial indicators included CR, ROE, ROA, Net Profit Margin, P/E Ratio, EPS, Dividend Yield, and ART, while Debt-to-Equity and Debt-to-Assets were treated as cost criteria to be minimized. This classification allowed the TOPSIS method to rank the companies accurately based on their overall financial strength.

Table 1: Companies used in the study

Property Company	**Code**
Sime Darby Property Berhad	C1
LBS Bina Group Berhad	C2
S P Setia Berhad	C3
Glomac Berhad	C4
SkyWorld Development Berhad	C5

The formula for the listed financial performance indicators used in the study are shown in from (1) to (10):

$$\text{Return on equity} = \frac{\text{Net profit}}{\text{Total shareholders equity}} \times 100\% \tag{1}$$

$$\text{Return on assets} = \frac{\text{Net profit}}{\text{Total assets}} \tag{2}$$

$$\text{Profit margin} = \frac{\text{Net profit}}{\text{Sales}} \times 100\% \tag{3}$$

$$\text{Current ratio (CR)} = \frac{\text{Current assets}}{\text{Current liabilities}} \times 100\% \tag{4}$$

$$\text{Debt to equity ratio} = \frac{\text{Total liabalities}}{\text{Total shareholders equity}} \times 100\% \tag{5}$$

$$\text{Debt to assets ratio} = \frac{\text{Total debts}}{\text{Total assets}} \times 100 \tag{6}$$

$$\text{Price earnings ratio} = \frac{\text{Market price per share}}{\text{Earnings per share}} \tag{7}$$

$$\text{Earnings per share} = \frac{\text{Net profit}}{\text{Number of shares}} \times 100\% \tag{8}$$

$$\text{Dividend yield} = \frac{\text{Dividend per share}}{\text{Market price per share}} \times 100\% \tag{9}$$

$$\text{Account receivables turnover (ART)} = \frac{\text{Net credit sales}}{\text{Average accounts receivable}} \tag{10}$$

TOPSIS model aims to determine the alternative which is the closes to the best ideal solution and farthest from the worst ideal solution [6]. TOPSIS steps are shown as below:

Step 1: Construct decision matrix, $\left(\left(x_{ij}\right)_{m\times n}\right)$

$$(x_{ij})_{m\times n} = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ . & & & . \\ . & & & . \\ . & & & . \\ x_{m1} & x_{m2} & \dots & x_{mn} \end{bmatrix} \tag{11}$$

Step 2: Decision matrix normalization, $(r_{ij})_{m\times n}$

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^2}} \text{ where } i = 1,2,...,m \text{ and } j = 1,2,...,n \tag{12}$$

$$R = (r_{ij})_{m\times n} = \begin{bmatrix} r_{11} & r_{12} & \dots & r_{1n} \\ r_{21} & r_{22} & \dots & r_{2n} \\ . & & & . \\ . & & & . \\ . & & & . \\ r_{m1} & r_{m2} & \dots & r_{mn} \end{bmatrix}$$

Step 3: Construct the weighted normalized decision matrix formation

$$\mathrm{T} = (t_{ij})_{m\times n} = (w_j r_{ij})_{m\times n}, i = 1,2,...,m, \sum_{j=1}^{n} w_j = 1$$

w_j is the equal weight that is given to the indicator where the w_j is equal to 0.1. This weight was determined by dividing 1 by the total of 10 financial indicators.

$$\mathrm{T} = \begin{bmatrix} w_1 r_{11} & w_2 r_{12} & \dots & w_n r_{1n} \\ w_1 r_{21} & w_2 r_{22} & \dots & w_n r_{2n} \\ . & & & . \\ . & & & . \\ . & & & . \\ w_1 r_{m1} & w_2 r_{m2} & \dots & w_n r_{mn} \end{bmatrix} \tag{13}$$

Step 4: Determine the positive/ best ideal and the negative/ worst ideal solution
Beneficial indicators:

$$A_b = \{\langle \min(t_{ij} \mid i = 1,2,...,m) \mid j \in J_- \rangle, \tag{14}$$
$$\langle \max(t_{ij} \mid i = 1,2,...,m) \mid j \in J_+ \rangle\} \equiv \{t_{bj} \mid j = 1,2,...,n\},$$

$$A_b = \{\langle \max(t_{ij} \mid i = 1,2,...,m) \mid j \in J_- \rangle, \tag{15}$$
$$\langle \min(t_{ij} \mid i = 1,2,...,m) \mid j \in J_+ \rangle\} \equiv \{t_{bj} \mid j = 1,2,...,n\},$$

where,
$J_+ = \{j = 1,2,...,n \mid j$ associates with the criteria having a positive impact, and
$J_- = \{j = 1,2,...,n \mid j$ associates with the criteria having a negative impact.

Step 5: Calculate the separation measures

$$d_{ib} = \sqrt{\sum_{j=1}^{n} (t_{ij} - t_{bj})^2}, i = 1,2,...,m \tag{16}$$

$$d_{iw} = \sqrt{\sum_{j=1}^{n} (t_{ij} - t_{wj})^2}, i = 1,2,...,m \tag{17}$$

Step 6: Calculate the relative closeness to the ideal solution for each alternative solution, s_{iw}

$$s_{iw} = \frac{d_{iw}}{d_{ib} + d_{iw}}, 0 \le s_{iw} \le 1, i = 1,2,...,m \tag{18}$$

Step 7: Rank the alternatives

The result is then can be rank and analyzed.

Empirical Results

Table 2, Table 3 and Table 4, present the multi-criteria decision-making matrix, normalized decision matrix and weighted normalized decision matrix respectively. The best ideal solution and worst ideal solution for each decision criterion are presented in Table 5: Best ideal A_b and worst ideal A_w solution

Table 2: Multi-criteria decision-making matrix

	Return on equity	Return on assets	Net profit margin	CR	Debt to equity	Debt to assets	P/E ratio	EPS	Divide-nd yield	ART
C1	4.07	2.561	11.87	1.96	0.29	0.2	25.01	0.06	4.11	0.22
C2	8.87	2.98	6.87	1.29	0.68	0.23	7.42	0.08	4.7	0.43

C3	2.10	1.23	8.16	1.68	0.61	0.31	16.35	0.05	1.71	0.15
C4	2.70	1.5	5.25	1.2	0.67	0.39	19.93	0.04	1.83	1.05
C5	27.9	11.2	17.9	1.77	0.78	0.53	5.99	0.19	3.75	1.77

Table 3: Normalized decision matrix

	Return on equity	Return on assets	Net profit margin	CR	Debt to equity	Debt to assets	P/E ratio	EPS	Divide-nd yield	ART
C1	0.1366	0.2129	0.4835	0.5463	0.2048	0.2536	0.6730	0.2704	0.5336	0.1038
C2	0.2981	0.2478	0.2798	0.3595	0.4839	0.2916	0.1997	0.3606	0.6102	0.2029
C3	0.0706	0.1023	0.3324	0.4673	0.4341	0.3931	0.4400	0.2164	0.2220	0.7078
C4	0.0907	0.1247	0.2139	0.3338	0.4768	0.4945	0.5363	0.1848	0.2376	0.4955
C5	0.9377	0.9313	0.7292	0.4924	0.5551	0.6720	0.1612	0.8461	0.4869	0.8352

In Table 3, SkyWorld Development Berhad (C5) remains on the upward trajectory by scoring high on the normalized values. However, S P Setia Berhad (C1) has a strong score in account receivables turnover that is equal to 0.7078, which was an indicator of the efficiency of receivables, rest of the company such as Sime Darby Property Berhad (C1) and LBS Bina Group Berhad (C2) are moderate.

Table 4: Weighted normalized decision matrix

	Return on equity	Return on assets	Net profit margin	CR	Debt to equity	Debt to assets	P/E ratio	EPS	Divide-nd yield	ART
C1	0.0137	0.0213	0.0484	0.0546	0.0205	0.0254	0.0673	0.0270	0.0534	0.0104
C2	0.0298	0.0248	0.0280	0.0359	0.0484	0.0292	0.0200	0.0361	0.0610	0.0203
C3	0.0071	0.0102	0.0332	0.0467	0.0434	0.0393	0.0440	0.0216	0.0222	0.0071
C4	0.0091	0.0125	0.0214	0.0334	0.0477	0.0495	0.0536	0.0185	0.0238	0.0495
C5	0.0938	0.0931	0.0729	0.0492	0.0555	0.0672	0.0161	0.0846	0.0487	0.0835

The weighted normalized decision matrix in Table 4 indicates distribution of weights for each criterion according to their significance. SkyWorld Development Berhad (C5) is thus, the overall winner and corroborated by high weighted scores accorded for profitability such as the return on equity and return on assets. However, Sime Darby Property Berhad (C1) and LBS Bina Group Berhad (C2) rated moderately and do not lead in all the criteria.

Table 5: Best ideal A_b and worst ideal A_w solution

	Return on equity	Return on assets	Net profit margin	CR	Debt to equity	Debt to assets	P/E ratio	EPS	Divide-nd yield	ART
A_b	0.0938	0.0931	0.0729	0.0546	0.0205	0.0254	0.0673	0.0846	0.0610	0.0835

A_w	0.0071	0.0102	0.0214	0.0334	0.0555	0.0672	0.0161	0.0185	0.0222	0.0071

Table 6: Distance of the alternatives from the best and worst ideal solution

Company	(d_{ib})	(d_{iw})	S_{iw}
C1	0.1446	0.0894	0.3822
C2	0.1432	0.0654	0.3136
C3	0.1691	0.0451	0.2104
C4	0.1588	0.0600	0.2742
C5	0.0760	0.1680	0.6884

Table 7: Ranking of the financial performance of the property companies in Malaysia

Company	S_{iw}	Rank
SkyWorld Development Berhad (C5)	0.6884	1
Sime Darby Property Berhad (C1)	0.3822	2
LBS Bina Group Berhad (C2)	0.3136	3
Glomac Berhad (C4)	0.2742	4
S P Setia Berhad (C3)	0.2104	5

Table 7, presents the ranking of financial performance of Malaysian property companies. SkyWorld Development Berhad (C5) recorded the highest score (S_{iw} = 0.6884), followed by Sime Darby Property Berhad (C1), LBS Bina Group Berhad (C2), Glomac Berhad (C4), and S P Setia Berhad (C3) at the lowest rank. The findings suggest that firms ranked higher are closer to the positive ideal solution, reflecting stronger financial health and providing useful benchmarks for performance evaluation.

Conclusion

Evaluate company performance is vital for continuous improvement and informed decision-making. This study demonstrates that SkyWorld Development Berhad ranked highest among the selected Malaysian property companies, largely due to its superior profitability and balanced overall financial performance. In contrast, S P Setia Berhad ranked lowest, indicating weaker alignment with the ideal standard. The findings highlight the usefulness of the TOPSIS method as a replicable framework for benchmarking corporate financial efficiency and supporting investment appraisals. However, this study is limited to selected financial indicators within a specific timeframe and industry scope. Future research could incorporate broader financial and non-financial measures, as well as comparative analyses across different sectors, to enhance the robustness and applicability of the findings.

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