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INTERRELATIONSHIPS OF FINANCIAL PERFORMANCE AND MARKET VALUE FOR THE HEALTHCARE SECTOR LISTED IN BURSA MALAYSIA

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Abstract:

This study explores the interrelationships between financial performance and market value among healthcare companies listed on Bursa Malaysia. It aims is to examine how key financial metrics namely liquidity, financial leverage, asset efficiency, and operating profitability influence investor perceptions and consequently impact market value within the healthcare sector. The study focuses specifically on companies categorized under healthcare equipment and services, using data obtained from their annual reports from 2014 to 2023. Price to book value (PBV) is employed as the dependent variable representing market value, while the independent variables consist of current ratio (CR), debt equity ratio (DER), total assets turnover (TATO), and net profit margin (NPM), each reflecting distinct aspects of financial performance. Descriptive statistics, correlation analysis, and multiple linear regression analysis are utilized to examine the relationships among the variables. The regression results found that debt equity ratio and total aset turnover are positive significant with price to book value. These results highlight the role of financial leverage and aset efficiency in determining the healthcare firm value. The sensitivity analysis highlights the same conclusions. In conclusion, the study provides empirical evidence that specific financial indicators significantly affect the market value of healthcare companies in Malaysia, offering insights for financial decision-making and investment strategies within the healthcare sector.

Keywords:

Financial Performance, Market Value, Healthcare Sector, Corporate Valuation

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Introduction

A company's market value is established by comparing the market value of its shares to its book value of equity, a ratio known as the price to book value ratio. However, a company's ability to make a profit is indicated by its financial performance, which is based on the revenue and total expenses line items on the income statement (Ratna, 2021). Financial performance involves calculating financial measures such as operating profitability, efficiency, financial leverage, and liquidity. Bursa Malaysia defines the healthcare equipment and services sector as manufacturers and healthcare equipment distributors, as well as healthcare service providers such as lab tests and dialysis centers. The importance of studying the healthcare industry is because of its vital role in economic growth and national well-being, as well as the particular financial difficulties it faces. The highly regulated and expensive environment in which healthcare organizations operate affects their financial performance and eventually, their market value (Alam & Hoque, 2020; Ratna, 2021).

Previous studies have demonstrated the importance of financial factors such as profitability, liquidity, leverage, and efficiency in assessing the sustainability and worth of healthcare companies (Abdullah & Hoque, 2018; Astuty, 2017). These financial traits show an organization's capacity to adjust to changing regulations and changing health needs, in addition to having an impact on investor confidence and decision-making. Therefore, examining the financial dynamics of the healthcare sector offers a clearer understanding of how market performance and long-term viability are influenced by financial health. Numerous enduring issues facing the healthcare sector warrant a careful examination of the ways in which financial factors impact its market value including shifting demand brought on by global health crises, demographic factors like aging populations, the drive to adopt new technologies, rising operational expenses, and regulatory uncertainty. According to studies, investors' opinions of a healthcare company's worth are greatly influenced by financial indicators like profitability, leverage, liquidity, and asset usage (Alam & Hoque, 2020; Astuty, 2017). Additionally, in capital markets, financial ratios such as the price to book value (PBV) are frequently used to evaluate the performance and valuation of firms, especially in capital-intensive industries like healthcare (Abdullah & Hoque, 2018). Understanding the relationship between financial health and market confidence and value is important given the industry's reliance on outside finance and susceptibility to economic shocks (Widyastuti & Daryanto, 2022). Therefore, in order for stakeholders to make wise decisions in this intricate and dynamic industry, it is imperative that financial indicators be analyzed in relation to market value.

Hence, this study aims to investigate the relationship between financial ratio analysis and market value in companies that provide medical equipment and services and are listed on Bursa Malaysia. This analysis is also to look into or establish the results of the elements such as liquidity, financial leverage, asset efficiency and operating profitability that affect the market value of the businesses that provided healthcare services and equipment listed in Bursa Malaysia. The healthcare industry is undeniably important for investments, particularly in the world-class amenities provided by both the private and governmental sectors in the delivery of specialized healthcare equipment and trained services.

Problem Statement

According to Abdullah and Hoque (2018), despite the extensive study on financial performance in various industries, limited studies have specifically addressed how financial performance indicators directly influence the market value of healthcare firms or companies in Malaysia. Understanding this connection is essential for both investors and management to make data-

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driven decisions in a sector that is highly sensitive to policy changes and market dynamics. Ali and Mohamed (2018) also demonstrated that the healthcare sector is heavily influenced by policy changes, such as healthcare funding reforms or public-private partnerships. However, study on the financial performance and market value of healthcare companies is scarce. Understanding these linkages is crucial for predicting market reactions to regulatory changes. In placing more emphasis, Lim and Tan (2019) claimed that understanding investor behavior, particularly during periods of economic uncertainty or healthcare crises, could provide valuable insights into market dynamics in this sector. Thus, this study aims to examine the interrelationship between financial performance and market value for healthcare firms and companies in Bursa Malaysia, exploring how factors such as liquidity, financial leverage, asset efficiency and operating profitability drive market value.

Research Questions

There are four (4) research questions for this research.

i. What is the relationship between liquidity ratio towards the market value?
ii. What is the relationship between financial leverage ratio towards the market value?
iii. What is the relationship between efficiency ratio towards the market value?
iv. What is the relationship between operating profitability ratio towards the market value?

Research Objectives

Main Research Objectives :

The study aims to examine the interrelationships between financial performance and market value in the sector of healthcare equipment and services listed in Bursa Malaysia.

Specific Research Objectives :

i. To examine the relationship between liquidity ratio towards market value.
ii. To examine the relationship between financial leverage ratio towards market value.
iii. To examine the relationship between efficiency ratio towards market value.
iv. To examine the relationship between operating profitability ratio towards market value.

Significance Of Study

This study is important because it can reveal the linkage of liquidity, leverage, asset efficiency and profitability. The sector of businesses that provided healthcare services and equipment was selected due to its attractiveness as an investment. Its resilience during economic downturns and meaningful growth potential explain this. Major regulatory changes, important technical improvements and large public health concerns considerably affect healthcare financial performance and these are key aspects of market analysis (Gartner & Hooten, 2015). Healthcare is particularly vulnerable to multiple regulatory shifts, such as healthcare reforms, drug approvals and public health policies. Meaningful improvements in medical technology and treatments greatly affect a company's market value and this concurrently affects multiple business decisions. Several key dynamics make the healthcare sector a compelling subject for examining the precise connection between financial performance as well as market value (Dube & Sood, 2017). Healthcare's public and private sectors interact in complex and meaningful ways. Many public policies and an important number of private industry trends influence the healthcare sector. Government regulations, subsidies and healthcare reforms considerably influence the finances of healthcare companies. In this highly regulated sector, investors must understand the connection between performance of financial and market value, as this understanding is important (Lichtenberg, 2019).

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Scope Of Study

By concentrating on the financial performance and market value of the sector, primarily businesses that provide healthcare services and equipment listed in Bursa Malaysia, this study aims to close the gap in the literature. Using the appropriate metrics, this study also looks at the sector's financial performance and the impact on its market value. The healthcare equipment industry includes rubber and latex, textiles, plastics, equipment, engineering support, and technology. This study's conclusions also show how much linked performance of healthcare equipment and services firms affects market value, enabling the firms to take the necessary steps to address initiatives to enhance related companies' performance.

Limitation Of Study

There are several sub-sectors of the businesses that provide healthcare services and equipment listed in Bursa Malaysia, including healthcare equipment and services, healthcare providers and also pharmaceuticals. Kwee, Hishammudin and Uchena (2013) stated in their study that quarterly data may not reflect the strategic decisions made at the board level, which usually take time to show significant results and annual data is more appropriate. According to Mohammed Ameen and Mahmoud Khalid (2015), annual data smooths out the short-term volatility seen in quarterly data, offering a clearer picture of long-term trends. On the contrary, Jianying Xie (2021) emphasized the importance of quarterly data in forecasting stock performance. Research by Sourav Medya and colleagues (2022) examined around 100,000 earnings transcripts from 6,300 publicly traded firms from the year 2010 to 2019. Their study suggested that quarterly data provides valuable information influencing market value. On the other hand, Moritz Scherrmann and Ralf Elsas (2023) who produced both fiscal-year-end and quarterly data in their study, also suggested using quarterly data in enhancing earnings predictions. This study's data is derived from the quarter reports, annual reports and also Eikon Database of the businesses listed on Bursa Malaysia, particularly in the sector of healthcare equipment and services. The findings of this study is believed to be used as a guidance for companies, particularly those in the sector mentioned, by demonstrating that the performance of the company is one of the most influential tools in management and it will help to increase the overall value of the company in the sector.

Literature Review

A critical discussion of past empirical studies on the relationship between financial performance and market value in the healthcare sector reveals both valuable insights and notable gaps. Several studies, such as those by Abdullah and Hoque (2018) and Astuty (2017), found significant correlations between financial ratios particularly profitability, leverage, and liquidity and market value indicators like stock price and price to book value. These findings underscore the importance of sound financial management in enhancing firm valuation. However, many of these studies adopted generalised frameworks without isolating the unique structural and regulatory complexities specific to the healthcare industry. Additionally, most empirical investigations relied on cross-sectional data, limiting the ability to observe long-term trends or causality. While Ratna (2021) and Alam and Hoque (2020) addressed some healthcare-specific dynamics, including sensitivity to policy changes and disclosure requirements, there is still limited focus on how capital intensity, innovation costs, and external shocks such as pandemics affect financial performance and investor perception. Furthermore, previous studies often grouped healthcare firms with other service industries, leading to a lack of targeted conclusions relevant to healthcare equipment and service providers. Recent research from 2019 to 2024, such as by Yusof et al. (2021) and Izzati and Omar (2023), began to explore these dimensions, yet methodological variations and inconsistencies in financial variables

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hinder comparability. Therefore, while past studies laid a foundational understanding of the financial–market value relationship, there remains a need for more nuanced, sector-specific, and longitudinal research to capture the evolving realities of healthcare firms, particularly in emerging markets like Malaysia.

Market Value

Berk and DeMarzo (2017) thoroughly discussed using the price to book ratio to value companies in equity and financial markets. The explanation clearly showed that the price-to-book ratio is an important measure for determining if a company's value is high or low, particularly for financial companies and those with large concrete assets. Zhang and Liu (2021) employed the price to book value ratio as the proxy for market value. Li, Liu and Wang (2022) examined a number of healthcare companies listed in the Shanghai Stock Exchange, using the price to book ratio as a market value's proxy for their analysis. Their study drew that a low price to book value is associated with a large degree of undervaluation in the sector, especially for a meaningful number of firms or companies with large research and development expenditures. Hence, the price to book value ratio (PBV) as the proxy for the market value in this study.

Liquidity Ratio

Liquidity has no and insignificant relationship with market value (Ariesa et al., 2020) and according to Uswatun and Hari (2021), partially, liquidity also has no relationship with the market value. On the contrary, according to Omar, Abdul Aziz, Syed and Nour (2016), liquidity ratio has a slight insignificant positive relationship with market value. Heny and Nurbaeti (2023) came out saying that the liquidity ratio has a significant relationship with market value. Novita and Yunita (2019) claimed that the liquidity ratio has a negative and significant relationship with market value. This was also supported by Diki, Eka and Muis (2022). Jasmina, Milan, and Nemanja (2022) also investigated the role of liquidity which is proxied by the current ratio in determining market value. A study by Lina, Nagian, Enda and Hutagalung (2021) discovered that the liquidity ratio has a significant relationship with market value. On top of that, Maria, José, and Antonio (2022), who explored the liquidity ratio, using current ratio, on corporate performance across firms and companies in Europe. They suggested that the current ratio remains a useful liquidity measure, especially in sectors where inventory turnover is slow, although it should be complemented by other liquidity measures for better insights into financial health. In addition, Muhammad Shahbaz, Zahid Iqbal, and Muhammad Arif (2023) emphasized the relevance of liquidity measures like the current ratio in assessing financial health in emerging markets in their study. Hence, the current ratio (CR) is used as the independent variable for the liquidity ratio in this study.

H_0: There is no significant relationship between liquidity ratio and market value.
H_1: There is a significant relationship between liquidity ratio and market value.

Financial Leverage Ratio

Karnawi (2017) reported that the financial leverage ratio has a relationship with market value but it is not significant. However, Sitti (2016) stated that there is a significant positive relationship between financial leverage ratio and market value. This was also supported by Maria, John and Johni (2022). On the other perspective, DER has a negative relationship with market value and it is a significant relationship (Fatmasari, 2021) and this is also supported by Hamzah and Muslim (2022), while Martina and Arif (2019) concluded in their studies that there is no relationship between financial leverage ratio and market value. Artur (2022) also

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posits in his study that in perfect markets, a market value is unaffected by financial leverage ratio. His findings also indicate that the impact of financial leverage on market value may vary depending on specific market conditions and company characteristics. Meanwhile, a study by Kumar, Rakesh, and Priya (2023) using DER as the proxy for their study discovered that there is a U-shaped relationship between leverage ratio and market value, meaning moderate leverage leads to better performance, while very high or low leverage results in lower performance. Their study also highlighted the importance of maintaining an optimal debt equity ratio for enhancing corporate profitability and asset efficiency. Hence, debt equity ratio (DER) is used as the independent variable for financial leverage ratio in this study.

H_0: There is no significant relationship between financial leverage ratio and market value.
H_1: There is a significant relationship between financial leverage ratio and market value.

Efficiency Ratio

Hari (2017) stressed that there is no relationship between efficiency ratio and market value. Ulfa and Nurfauziah (2017) discovered that there is a negative and insignificant relationship between efficiency ratio and market value but a finding by Muhamad (2021) discovered that efficiency has a positive relationship with market value, but it is insignificant. Nevertheless, Ryan, Harry and Eddy (2021) discovered that the efficiency ratio has a positive and significant relationship with the market value. Nekky (2022) also demonstrated experimentally that there is a positive and significant relationship between efficiency ratio and market value. In contrast to Sarif (2020), he stated that TATO has a negative and significant relationship with the market value directly. Findings by Jeanne-Claire, Matiur and Mustafa (2020) and also by Jocelyn and Harlyn (2021) demonstrate that total asset turnover is a valuable indicator for investors and analysts to assess a firm or company's potential impact on financial performance. Hence, total asset turnover (TATO) is used as the independent variable for asset efficiency ratio in this study.

H_0: There is no significant relationship between efficiency ratio and market value.
H_1: There is a significant relationship between efficiency ratio and market value.

Operating Profitability Ratio

Doron (2023) emphasizes that profit margins, including net profit margin, are essential drivers of operating profitability. This study analyzes how profit margins, and other funding ratios collectively influence a market's financial performance, underscoring the importance of net profit margin profitability analysis. According to a study by Sitti (2016) operating profitability has no relationship with market value. Fathihani (2020) demonstrated that operating profitability has a negative and insignificant relationship with the market value. Rahman et al. (2021) examined the performance of glove manufacturers financially, listed in Bursa Malaysia during the pandemic. Their study revealed a significant short-term boost in profitability and market value. Astuty (2017) has stated in her study that there is a significant positive relationship between operating profitability and market value, also discovered by (Sukesti et al., 2021). Mashur, Agustinus, Zainal and Faisal (2022) mentioned in their study, there is a positive but not significant relationship between operating profitability ratio and market value. Instead, Atika and Bambang (2012) mentioned that there is a negative and significant relationship between operating profitability and market value, which is also discovered by Dedi, Rani and Yusof (2018), who came out with the same finding. Delyana and Muhammad (2020) stated that operating profitability has a negative and insignificant relationship with the market value. Due to the conflicting outcomes of past studies, this paper will study the

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interrelationships between the profitability ratio and firm value of healthcare equipment and services listed in Bursa Malaysia. Hence, net profit margin (NPM) is used as the independent variable for the operating profitability ratio in this study.

H_0: There is no significant relationship between operating profitability ratio and market value.
H_1: There is a significant relationship between operating profitability ratio and market value.

Theoretical Framework

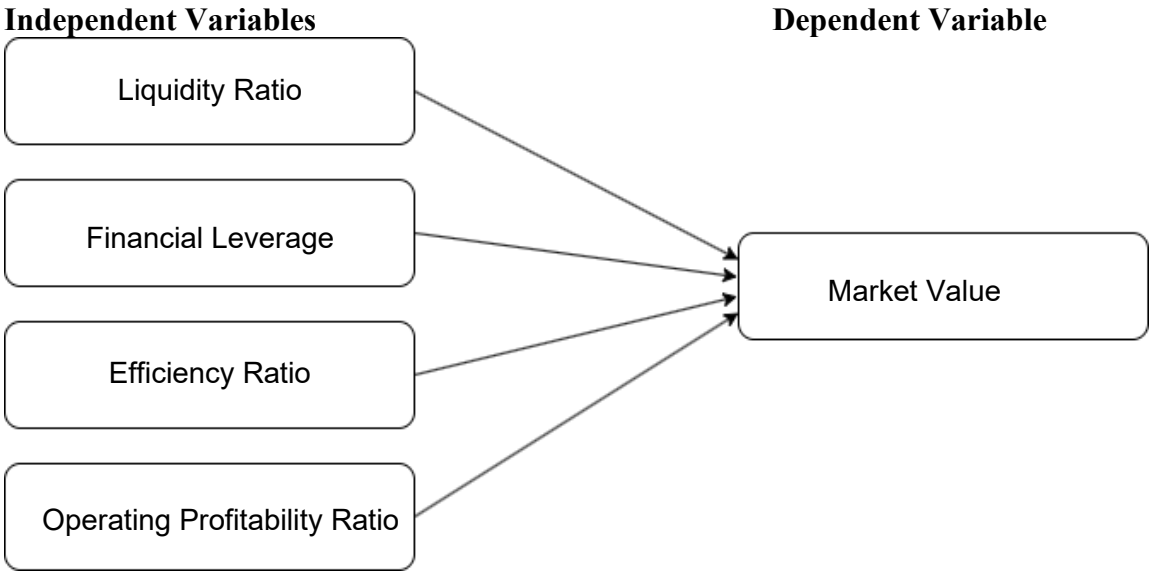

Figure 1: Theoretical Framework

Research Methodology

Sample and Data Collection

Past empirical studies on the relationship between financial performance and market value in the healthcare sector have typically used samples comprising publicly listed healthcare firms, particularly those listed on major stock exchanges. For example, Abdullah and Hoque (2018) and Ratna (2021) focused on healthcare companies under the healthcare sector classification of Bursa Malaysia, which includes healthcare service providers like hospitals, diagnostic centers, and dialysis facilities, as well as manufacturers and distributors of medical equipment. These studies often relied on secondary data obtained from annual financial reports, Bloomberg terminals, or data provided by Bursa Malaysia over periods ranging from 3 to 10 years. Most researchers employed purposive sampling, selecting firms that had complete financial data and consistent listings throughout the study period. While this approach ensures data availability and comparability, it may introduce survivorship bias by excluding delisted or underperforming firms (Yusof et al., 2021). Some studies, such as those by Alam and Hoque (2020), included firms from broader sectors for comparative purposes, but this often-diluted industry-specific insights. Overall, the sample selection in past research was largely appropriate for financial analysis but could benefit from greater diversity, inclusion of small and mid-sized healthcare firms, and a longer time horizon to better capture the impact of regulatory shifts and economic cycles on financial performance and market value.

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Research Design

This study focuses on the sector of healthcare listed in Bursa Malaysia, namely healthcare equipment and services. ADVENTA, AHEALTH, CAREPLS, CENGILD, DPHARMA, HARTA, HEXCARE, IHH, KOSSAN, KOTRA, KPJ, LKL, LYC, MGRC, MHCARE, NOVA, NPS, OPTIMAX, PHARMA, SCOMNET, SMILE, SUPERMX, TMCLIFE, TOPGLOV, TOPVSN and YSPSAH are the twenty-six counters listed in Bursa Malaysia that are included in this study's sample. This study is using data from the last ten years, from 2014 to 2023. The information for this study mostly gathered from the quarterly and also annual reports of each of the companies in Bursa Malaysia. It consists of a panel dataset of twenty-six Malaysian healthcare equipment and services companies over a ten-year period from 2014 to 2023. Matthew (2018) discussed the performance of value investing strategies over a ten-year period. Armand (2022) also examined over the ten-year period from 2010 to 2019 focusing on market-value-weighted indices.

Variables

Dependent Variable

Cause is another name for the dependent variable. Its value is independent of other variables in a study or research. In this study, the market value is the dependent variable. The price to book value ratio (PBV) is used as a proxy to measure and determine the financial performance of the healthcare equipment and services sector and is represented as a percentage. As previously noted, the data ranges from 2014 to 2023. The use of the price to book value (PBV) ratio as a measure of performance in past research is well-justified due to several key reasons. PBV reflects the market's valuation of a firm relative to its book value, making it a strong indicator of investor perception and market confidence. Unlike earnings per share (EPS) or return on assets (ROA), which focus on internal profitability, PBV captures how external market participants value the firm's equity, offering a broader perspective on firm performance (Abdullah and Hoque 2018). PBV is particularly relevant for asset-intensive industries like healthcare, where large capital investments in equipment and infrastructure are common. Studies such as Astuty (2017) and Ratna (2021) emphasized that PBV is less volatile than market price alone and provides a more stable benchmark for evaluating firm valuation over time. Furthermore, PBV is often used in emerging markets, including Malaysia, where accounting practices and earnings quality may vary, making book value a more consistent base for comparison (Yusof et al. 2021). Compared to price to earnings (P/E) ratios, which can be distorted by short-term earnings fluctuations, PBV offers a long-term view of value creation, especially in sectors where intangible assets and innovation play a key role. Therefore, past research supports the use of PBV as a reliable, market-based metric for analyzing the impact of financial performance on firm valuation in the healthcare industry.

Independent Variables

Effect is another name for the independent variable. Similarly, its value is affected by the changes in the variable itself. This study's independent variables are liquidity ratio, financial leverage ratio, asset efficiency ratio and also operating profitability ratio.

Table 1: Variables and Proxy

Variables	Proxy	Unit	Symbol
Market Value	Price to Book Value	Percentage	PBV
Liquidity Ratio	Current Ratio	Percentage	CR
Financial Leverage Ratio	Debt Equity Ratio	Percentage	DER

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Efficiency Ratio	Total Asset Turnover	Percentage	TATO
Operating Profitability Ratio	Net Profit Margin	Percentage	NPM

Definition Of Terms

Market Value : The term "market value" refers to the financial metrics that assess the firm or company's stock price to the value of its assets minus liabilities.

Liquidity Ratio : The term "liquidity ratio" refers to the financial metrics that assess the firm or company's ability to meet its short-term obligations using its quick assets without having to depend on its inventories.

Financial Leverage Ratio : The term "financial leverage ratio" refers to the financial metrics that assess the firm or company's ability to use lower debt to finance its total equity, calculate its long-term debt and pay additional interest expenses.

Efficiency Ratio : The term "efficiency ratio" refers to the financial metrics that assess the firm or company's turnover in using its assets or fixed assets to generate sales and also its efficiency in collecting debt payments relative to its sales.

Operating Profitability Ratio : The term "operating profitability ratio" refers to the financial metrics that assess the firm or company's ability to generate sales revenue that can be translated into net profit and how efficiently the company makes use of its total assets and equity to generate

Multiple Linear Regression Analysis

The most common kind of linear regression analysis is multiple linear regression. The most effective predictive analysis technique for elucidating the relationship between two or more independent variables and a single continuous dependent variable is multiple linear regression.

$$PBVt = \beta0 + \beta1CRi + \beta2DERi + \beta3TATOi + \beta4NPMi + \varepsilon i. \qquad \textbf{MODEL 1}$$

PBV = Market Value (Price to Book Value)
β = Coefficient beta values
CR = Current Ratio
DER = Debt Equity Ratio
TATO = Total Asset Turnover
NPM = Net Profit Margin
ε = Error Term
i = 26 healthcare equipment and services companies listed in Bursa Malaysia
t = year 2014 until 2023

Results and Findings

Descriptive Analysis

Table 2: Results of Descriptive Analysis

	PBV	CR	DER	TATO	NPM
Mean	3.1301	2.8135	0.4182	0.7942	4.0675
Standard Error	0.2057	0.1614	0.0544	0.0282	1.7630
Median	2.0900	2.0400	0.1600	0.7500	8.0000
Mode	13.7300	2.5400	0.0000	0.6800	10.2800
Standard Deviation	3.0861	2.4209	0.8160	0.4228	26.4443
Sample Variance	9.5239	5.8610	0.6658	0.1787	699.3002
Kurtosis	3.5504	6.0496	32.7996	0.4942	17.4260
Skewness	1.9860	2.2573	5.0272	0.6440	-3.4762
Range	13.7300	15.0700	7.4700	2.4600	232.0400

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Minimum	0.0000	0.3700	0.0000	0.0500	-157.8100
Maximum	13.7300	15.4400	7.4700	2.5100	74.2300

Descriptive analysis helps to explain and understand the behaviour of a given data set with brief summarizations of the said sample and data set. It involves a sample and data set of nine companies with a time framework of ten years. In this research study, the above table 4.1 is the descriptive analysis of the overall mean, median, maximum, minimum and standard deviation of the dependent variable and independent variables. The dependent variable is market value, in which a proxy is PBV. Therefore, a higher PBV indicates that a company's stock is trading at a higher price relative to its book value, often suggesting market optimism or overvaluation. It shows that the PBV has an average value equal to 3.1301 and a standard deviation of 3.0861. The highest PBV is 13.73 and the lowest is 0.0000. In this study, there are four independent variables namely liquidity, financial leverage, asset efficiency and operating profitability ratio which is measured by CR, DER, TATO, and NPM respectively.

Also in this study, the mean PBV is 3.1301, which is higher than the median PBV of 2.0900. This difference, combined with a skewness of 1.9860, indicates a right-skewed distribution, where a few large values are pulling the mean upward. The kurtosis of 3.5504 further suggests that the distribution has heavier tails than a normal distribution, indicating the presence of outliers. The mode, which is 13.7300, is much higher than both the mean and median, reinforcing the likelihood of extreme values in the dataset. The standard deviation which is 3.0861 shows considerable variability in the PBV across observations, which might reflect the diverse financial performance or valuation metrics among the entities in the dataset.

CR has a mean of 2.8135 and a standard deviation of 2.4209, indicating a moderate level of variability. The skewness which is 2.2573 shows that the data is right-skewed, meaning most entities have CR values on the lower end, with a few having very high ratios. The kurtosis of 6.0496 implies a leptokurtic distribution with heavier tails, suggesting the presence of some outliers. While the variability is not as extreme as in other variables, the skewness and kurtosis indicate that certain observations may disproportionately influence the mean.

DER exhibits very high kurtosis and skewness 32.7996 and 5.0272 respectively, indicating an extremely right-skewed distribution with significant outliers. The mean of DER is 0.4182, but the median is much lower at 0.1600, showing that most values are concentrated at the lower end, with a few very large values inflating the mean. This extreme variability is also reflected in the standard deviation which is 0.8160 and the wide range of 7.4700. Such extreme outliers may distort the analysis and require further investigation or possible data transformation.

TATO has a mean of 0.7942 and a standard deviation of 0.4228, indicating low variability among observations. The range of 2.4600 supports this finding, as the difference between the minimum (0.0500) and maximum (2.5100) is relatively small. The skewness (0.6440) and kurtosis (0.4942) are also low, suggesting a near normal distribution. Overall, TATO values are relatively consistent across the dataset, indicating similar asset efficiency in asset utilization among the entities analyzed.

NPM exhibits high variability, with a standard deviation of 26.4443 and a range of 232.04 (minimum = -157.81, maximum = 74.23). The mean NPM is 4.0675, but the wide range and large negative minimum value indicate significant disparities in profitability, with some entities

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experiencing substantial losses. The skewness (-3.4762) shows a left-skewed distribution, where most values are concentrated on the higher end, but a few extreme negative values pull the distribution tail to the left. The kurtosis (17.4260) indicates heavy tails and the presence of outliers, further emphasizing the variability in profitability.

Correlation Analysis

Table 3: Results of Correlation Analysis

	PBV	CR	DER	TATO	NPM
PBV	1				
CR	-0.0572	1			
DER	0.2298	-0.2728	1		
TATO	0.0672	-0.0679	-0.3435	1	
NPM	0.0238	0.1424	-0.4340	0.3400	1

As shown in Table 4.2, the correlation analysis showed a negative correlation between CR and PBV meanwhile DER, TATO and NPM are positively correlated. PBV has a very weak negative correlation with CR (-0.0572), indicating a minimal inverse relationship between liquidity and market value. PBV has a weak positive correlation with DER (0.2298) and TATO (0.0672), suggesting that increases in financial leverage and asset efficiency may slightly influence market valuation. Meanwhile, it has a very weak positive correlation between PBV and NPM (0.0238), implying that operating profitability has little direct impact on market value. Overall, PBV appears to be relatively independent of the other financial indicators in this analysis.

Multiple Regression Analysis

Table 4: Results of Multiple Linear Regression Analysis

	Coefficients	Standard Error	t Stat	P-value
Intercept	1.5934	0.6035	2.6403***	0.0089***
CR	0.0361	0.0869	0.4158	0.6780
DER	1.2800	0.2889	4.4313***	0.0000***
TATO	1.0629	0.5230	2.0321**	0.0433**
NPM	0.0137	0.0086	1.5936	0.1125
Regression Statistics				
Multiple R	0.2979			
R Square	0.0888			
Adjusted R Square	0.0722			
Standard Error	2.9726			
Observations	225			

***statistically significant at 0.01 level
** statistically significant at 0.05 level

Panel data were used in this study, to determine the output of this regression analysis. It comprises twenty-six companies in the healthcare equipment and services sector within a ten years time framework. The dependent variable is market value, which is measured by the proxy PBV while independent variables are the liquidity, financial leverage, asset efficiency and operating profitability. The regression analysis as shown in table 4.4 were using the Panel Least Square method for the significance of variables to be tested with the overall model. The equation obtained from the above analysis for each variable are as followed.

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PBV = 1.5934 +1.2800DER + 1.0629TATO

The regression analysis reveals an intercept value of 1.5934, which is statistically significant (p = 0.0089). This indicates that when all independent variables such as CR, DER, TATO, and NPM. When all of these variables are equal to zero, the estimated PBV would be 1.5934. While this is the mathematical interpretation, it is important to note that zero values for these financial ratios are generally unrealistic in practical settings. Therefore, the intercept may be better understood as a baseline level of PBV that captures the influence of other omitted factors not included in the model such as macroeconomic conditions, investor sentiment, or industry-specific characteristics. The first independent variable is liquidity ratio which is measured by a CR. The relationship between CR and the PBV is not statistically significant. This result is in line with studies conducted by Omar, Abdul Aziz, Syed and Nour (2016) as well as Lina, Nagian, Enda and Hutagalung (2021).

The second independent variable is measured by financial leverage ratio. DER has a statistically significant positive relationship with PBV. A unit increase in DER is associated with a 1.2800 increase in the PBV. The p-value is less than 0.01, showing a highly significant positive relationship between DER and PBV. This means an increase in DER is strongly associated with an increase in PBV. This result supports the result of studies conducted by Sitti (2016) and Maria, John and Johni (2022) which stated that there is a positive significant relationship between financial leverage and market value.

The third independent variable is asset efficiency ratio. TATO has a statistically significant positive relationship with PBV. A unit increase in TATO is associated with a 1.0629 increase in the PBV. The p-value is less than 0.05, indicating a statistically significant positive relationship between TATO and PBV. A higher TATO is positively correlated with the PBV. Based on the results displayed above, leverage was discovered to have a significant positive relationship with PBV which supports the results of studies performed by Ryan, Harry and Eddy (2021) and also a study by Nekky (2022).

The fourth independent variable is profitability ratio which is measured by NPM. Based on the equation, NPM is statistically insignificant relationship with PBV. This result is in line with studies conducted by Mashur, Agustinus, Zainal and Faisal (2022) and Melina and Frederick (2022).

Additionally, the model shows a low R-squared value (0.0888), suggesting that only 8.88% of the variation in PBV is explained by the selected independent variables. Among these, DER and TATO are statistically significant predictors, with p-values of 0.0000 and 0.0433 respectively, highlighting the role of financial leverage and asset efficiency in determining firm value. These findings underscore the need for a broader set of explanatory variables or a more complex modeling approach to fully capture the determinants of PBV.

Table 5: Results of F-Test

ANOVA	df	SS	MS	F	Significance F
Regression	4	242.5510	60.6378	5.0356	0.0006
Residual	500	6020.8979	12.0418		
Total	504	6263.4490			

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From the above table, the F-test of the regression analysis is 5.0356 while its p-value of F-test is 0.0006 which is lower than the 0.05 significance level. Therefore, this study rejected the null hypothesis. This value indicates the ratio of the explained variance which is by the regression model to the unexplained variance or by the residuals. A higher F-statistic suggests that the model explains a significant portion of the variance. Since the p-value is less than 0.05, it indicates that the regression model is statistically significant at the 5% level. It means that at least one of the independent variables has a significant relationship with PBV.

Additional Analysis

This section discusses another additional analysis to measure the sensitivity of the study's findings to demonstrate that the estimated regression for the equation is stable and reliable. The objective of conducting this additional analysis is to determine whether the results of the multiple linear regression tests reported in Table 4.4 are robust if the measurements of the dependent and independent variables are modified while still maintaining the original study model as discussed in this Chapter 4. A robustness test is conducted using quarterly data. The result of the additional analysis is presented below:

Table 6: Result of Multiple Linear Regression Analysis using Quarterly Data

	Coefficients	Standard Error	t Stat	P-value
Intercept	2.6174	0.2934	8.9194	0.0000***
CR	0.0324	0.0395	0.8210	0.4121
DER	0.0145	0.0043	3.3379	0.0009***
TATO	0.0309	0.0119	2.5930	0.0098***
NPM	0.0000	0.0000	-0.2078	0.8355
Regression Statistics				
Multiple R	0.1968			
R Square	0.0387			
Adjusted R Square	0.0310			
Standard Error	3.4701			
Observations	505			

*** statistically significant at 0.01 level

In terms of variable significance, DER is significant in both models, but its P-value is lower in the quarterly model data which is only 0.0009 than in the annual model data 0.0000, suggesting stronger evidence in quarterly model data. TATO is also significant in both models, with its P-value in the quarterly model data is 0.0098 shows there is a slightly stronger significance relationship compared to the annual model data which is 0.0433. However, CR and NPM are insignificant in both models, with consistently high P-values across the datasets.

The comparison between the regression analyses using quarterly and annually model data highlights notable differences in model performance and variable significance. The quarterly model has an R-Squared value of 0.0387, which is substantially lower than the annual model's R-Squared value of 0.0888. This indicates that the annual model data explains a larger proportion of the variance in the dependent variable. The adjusted R-Squared values follow the same pattern, with the annual model data 0.0722 outperforming the quarterly model data which is 0.0310. Additionally, the standard error for the annual model data 2.9726 is lower compared to the quarterly model data 3.4701, signifying that the annual model data provides more precise predictions.

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Overall, while the annual model data demonstrates a greater explanatory power and precision, meanwhile the quarterly model captures more short-term variability and provides a slightly stronger significance relationship for certain variables like DER and TATO. The choice of model depends on the research focus whether the emphasis is on long-term insights which is annually or short-term dynamics which is quarterly.

Conclusions

This study examined the interrelationship between financial performance and market value of the healthcare equipment and services sector in Malaysia which included two types of variables which are dependent and independent variables. As a result, two out of four independent variables have a significant positive relationship with the PBV. The significant positive independent variables are financial leverage and asset efficiency ratio which were measured by DER and TATO. CR and NPM are not statistically significant with PBV. This finding is supported by the previous research which were conducted by Omar, Abdul Aziz, Syed and Nour (2016), Sitti (2016) Lina, Nagian, Enda and Hutagalung (2021), Ryan, Harry and Eddy (2021), Maria, John and Johni (2022), Nekky (2022) Mashur, Agustinus, Zainal and Faisal (2022) as well as Melina and Frederick (2022). Future research should concentrate on other factors that have a greater influence on market value.

Recommendations

Several recommendations can be made to enhance the financial performance of the healthcare equipment and services sector in Malaysia. First, given the significant positive impact of DER on financial performance, companies and firms should strategically use debt to support growth and operations while maintaining a balanced approach to avoid financial instability. As TATO is also one of the key factors, companies and firms should also focus on improving asset efficiency to increase revenue. It is believed that this can be achieved by enhancing the operational management, investing in cutting-edge technologies, and optimizing processes. CR shows an insignificant relationship with financial performance, suggesting that companies or firms should avoid holding excessive liquidity, as this could indicate underutilized resources. Instead, liquidity should be managed carefully to ensure funds are directed toward value-creating activities such as product or service innovation, joint ventures with other businesses, advanced technologies like automation, Artificial Intelligent (AI), or data analytics implementation or investing in employee skills especially in the healthcare sector. While NPM was not statistically significant, improving profitability remains crucial but this can be accomplished by reducing costs, offering higher-value services, and securing better terms with suppliers and clients. Given the low R-Squared value, it is important to explore other factors influencing financial performance, such as market demand, regulatory compliance, and innovation in healthcare technology.

Based on the findings, future investors are encouraged to explore investment opportunities in the healthcare equipment and services sector in Malaysia. The notable positive influence of DER and TATO on financial performance underscores the sector's potential to deliver returns when companies effectively manage debt and utilize their assets efficiently. Although the model suggests there is still room for improvement in explaining financial performance, the sector's strategic significance and operational strengths make it a promising option for investors looking for growth prospects in a dynamic and essential industry. However, investors should perform thorough due diligence, focusing on companies with strong asset management practices and sound debt strategies to optimize returns.

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