

A STUDY OF MALAYSIAN PHARMACEUTICAL COMPANIES ON FINANCIAL LEVERAGE AND FIRM PERFORMANCE

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ABSTRACT

This study investigates the relationship between financial leverage and firm performance among pharmaceutical companies in Malaysia, with specific objectives of assessing the impact of debt-to-equity ratio (DR) and interest rates on return on assets (ROA). Using a sample of seven publicly traded pharmaceutical firms listed on Bursa Malaysia and secondary data derived from their financial statements for the period of 2011-2020, the study evaluates firm size, liquidity, and profitability as key variables. The results reveal a significant positive relationship between financial leverage and ROA, contrary to prior studies that report a negative correlation. Firm size emerges as a critical factor, with larger firms exhibiting higher profitability but also a greater likelihood of financial distress. The findings suggest that Malaysian pharmaceutical companies should strategically manage their debt-to-equity ratios, optimize resource allocation, and explore research and development opportunities to enhance performance. Future research should expand the dataset to include firms outside the main market and investigate additional factors, such as short-term and long-term debt, influencing firm performance.

Keywords: Debt Financing, Financial Leverage, Firm Performance, Interest Rates, Firm Size

INTRODUCTION

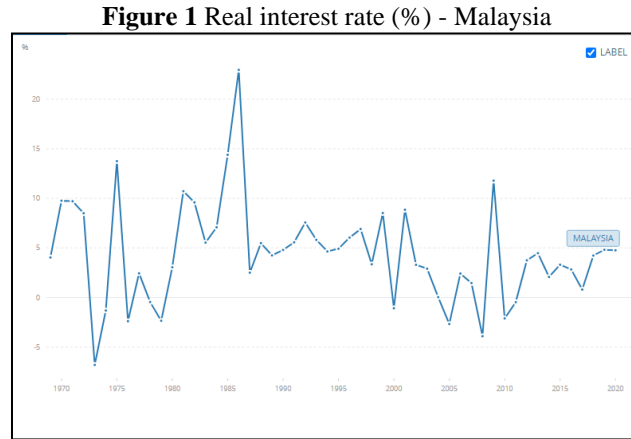
Capital is essential for businesses to launch, operate, and expand their activities. Companies that utilize debt to finance operations are often perceived as having lower liquidity, which can affect their financial stability. This study investigates the relationship between debt financing, specifically financial leverage, and firm performance in Malaysia's pharmaceutical sector. It examines the extent to which debt-financed asset investments contribute to financial challenges within these firms.

Malaysia's pharmaceutical industry encompasses various segments, including innovative drugs, biological products, and generic medicines. These products are distributed through prescription and over-the-counter channels. As identified by the Malaysian Investment Development Authority (2021), the pharmaceutical sector is recognized as a key driver of economic growth. Debt levels in Malaysia's non-financial corporate sector have grown at a regulated pace, with Bank Negara Malaysia reporting that debt financing constituted 82% of total corporate resources in 2014. This trend reflects the increasing reliance on debt to support domestic economic development.

The pharmaceutical sector in Malaysia is divided into three primary activities: manufacturing, importation, and distribution. Manufacturing dominates the sector, followed by importation and distribution (Babar, 2015). Generic drugs in Malaysia are 30% to 90% less expensive than brand-name counterparts, making them a critical component of healthcare affordability. However, uncertainty surrounding interest rates, loan agreements, collateral value, and repayment obligations amplifies financial risks. Unlike equity financing, debt financing entails

fixed costs such as interest payments and potential bankruptcy risks, which can adversely impact firm performance.

The Malaysian corporate bond and debt instruments market has seen growth in recent years, contributing to an increase in corporate indebtedness and potentially raising risks of financial instability. Figure 1 illustrates the real interest rate trends in Malaysia over five decades, from 1970 to 2020.



Sources: The World Bank

Additionally, the pharmaceutical sector in Malaysia faces challenges in intellectual property rights (IPRs), which require substantial attention and resources for improvement. Financial leverage is designed to enhance returns on fixed charges, but it can lead to financial distress when income falls short of meeting obligations. Financial distress, a precursor to bankruptcy, can have long-term repercussions on creditworthiness. This study evaluates whether Malaysian pharmaceutical firms should consider strategies such as debt restructuring or cost reduction to mitigate financial risks. Overall, the research seeks to examine the relationship between debt financing and firm performance in Malaysia's pharmaceutical industry.

This study aims to explore the relationship between financial leverage and firm performance by addressing the following research questions:

1. What is the relationship between financial leverage and firm performance among pharmaceutical companies in Malaysia?
2. How do interest rates associated with financial leverage impact the performance of pharmaceutical companies in Malaysia?
3. Does firm size influence firm performance in the pharmaceutical sector?

Statement Hypotheses

To investigate the relationship between financial leverage and firm performance, the study tests the following hypotheses:

H1: Financial leverage has a negative relationship with firm performance.

H2: Interest rates associated with financial leverage negatively affect firm performance.

H3: Firm size has a positive relationship with firm performance, measured by return on assets (ROA).

LITERATURE REVIEW

Financial Leverage

Financial leverage refers to the method by which companies finance their assets using a combination of debt and equity. According to Rehman (2013), it represents how firms allocate these two components within their capital structures. When a company combines internal funds with external borrowings, it engages in financial leverage. The growing need for additional financing becomes more pressing as companies expand and enhance their products. Firms lacking sufficient internal funds may turn to external sources such as debt or equity, resulting in leveraged transactions.

The primary consequences of financial leverage include the potential cost of bankruptcy and conflicts of interest between shareholders and debt holders (Mwenda, 2018). High financial and operational leverage can drive firms toward risky investments. Operating leverage occurs when a company earns high profit margins despite low sales volumes. However, inaccurate sales forecasts, even marginally optimistic ones, can cause significant discrepancies between actual and budgeted cash flows, adversely affecting a firm's operational capacity.

Increased debt can also create conflicts between shareholders and debt holders. Shareholders seek to maximize returns without assuming additional costs, while debt holders prioritize the repayment of liabilities, including agency costs arising from higher debt levels. Oduol (2011) examined the relationship between liquidity and leverage in 30 publicly traded Kenyan companies from 2006 to 2010 using secondary data and multiple regression analysis. The study found a weak and insignificant relationship between liquidity and leverage, recommending strong working capital management practices and efficient cash conversion cycles for businesses.

Financial leverage is often assessed through metrics such as the debt ratio, equity ratio, and interest coverage ratio (Gamlath, 2019). Firms may use leverage to enhance returns on investment, with borrowing frequently preferred over raising equity capital. However, excessive debt increases the risk of default or bankruptcy (Mukras, 2015). Javed et al. (2015) observed that firms tend to borrow conservatively when they possess sufficient internal capital. Abubakar (2015) noted that increased debt financing negatively impacts financial performance, as indicated by a decline in return on equity (ROE). Owners of manufacturing firms must carefully manage risks associated with short- and long-term debt. Despite these risks, financial leverage can positively influence asset value, as it is positively associated with return on assets (ROA).

Interest Rates

Interest rates play a critical role in financial decisions, with a positive relationship observed between real GDP and inflation, both of which influence loan interest rates. Under the assumption of *ceteris paribus*, higher interest rates reduce market prices and real GDP. Real interest rates, adjusted for inflation, reflect the actual cost of borrowing and the real return to lenders. Borrowers benefit from inflation by repaying loans with money of lower real value, while lenders experience a decline in purchasing power. Inflation-driven increases in the cost of goods and services raise the demand for borrowing, leading to higher interest rates that benefit lending institutions.

Alessandri and Nelson (2015) highlighted that lending interest rates are vulnerable to fluctuations in financial institutions' credit portfolios and the broader interest rate environment. Interest rate volatility—the variation in rates over time—has prompted banks and financial

institutions to adjust lending and deposit rates accordingly. Fluctuating interest rates impact businesses by altering borrowing costs and returns from investment accounts.

The interest coverage ratio, which measures a firm's ability to meet interest payment obligations, is a key indicator of financial health. Companies with strong interest coverage ratios are more likely to secure loans compared to those with weaker ratios (Kordsachia, 2021). However, profitable businesses may prefer financing through retained earnings rather than debt, complicating the prediction of leverage's relationship to interest coverage. The ratio is calculated as the relationship between earnings before interest, taxes, and exceptional items, and the total interest paid in a year.

Interest rates significantly influence a company's capital structure by affecting the cost of borrowed funds. Le and Phan (2017) observed that rising interest rates increase the opportunity cost of holding money, reducing the demand for borrowing. High interest rates and restrictive financial leverage policies negatively impact overall profitability.

Firm Size

Firm size is often determined by the total assets controlled by a company, serving as a measure of its scale and capacity (Hirdinis, 2019). Common proxies for firm size include the natural logarithm of total assets, total sales, and market value of equity (Dogan, 2013; Dioha et al., 2018; Dang et al., 2019). In this study, firm size is measured by the natural logarithm of total assets, reflecting the resources available for investment opportunities and growth. Larger firms often capitalize on these resources to expand their market presence and sustain long-term value creation.

Large firms typically have better access to financing through public sources, such as banks and capital markets, and private sources, like family or internal networks (Brealey et al., 2011). As firms grow, their public visibility and credibility improve, making it easier to secure funding for operations and innovations (Susilawati & Suryaningsih, 2020). Larger firms are also better equipped to stabilize resources needed for innovation, while smaller firms often face financial constraints that limit their innovative capacity (Daunfeldt & Halvarsson, 2015). Publicly traded corporations generally have lower bankruptcy risks due to their ability to attract diverse financing sources, thereby enhancing operational efficiency and overall performance.

Pecking Order Theory

The Pecking Order Theory explains capital structure choices based on the hierarchical preference for financing sources. When there is asymmetric information between external investors and internal managers, firms prioritize internal financing through retained earnings, followed by debt, and lastly equity (Myers & Majluf, 1984). This approach minimizes the costs associated with information asymmetry and preserves shareholder value.

Firms with significant financing needs often exhibit higher debt-to-equity ratios due to their reliance on debt to bridge funding gaps. However, larger firms benefit from better access to financial markets, reduced borrowing costs, and lower susceptibility to information asymmetry. This advantage allows them to optimize their capital structure and maintain financial stability while meeting their growth requirements.

Trade-Off Theory

The Trade-Off Theory posits that firms balance the costs and benefits of debt and equity to determine their optimal capital structure. Debt offers tax advantages through interest deductibility but also increases financial distress risk, particularly for firms with volatile earnings (Mishra & Dasgupta, 2019). The theory is particularly relevant for firms with substantial intangible assets, as these assets often lack collateral value.

High leverage intensifies the pressure on firms to generate sufficient cash flows to meet interest obligations, exposing them to greater risk of financial distress. Sustained volatility in earnings and cash flow can undermine a firm's sustainability, emphasizing the need for prudent leverage management. By carefully evaluating these trade-offs, firms aim to maximize their value while maintaining operational resilience.

Empirical Evidence

Empirical studies provide diverse insights into the relationship between financial leverage and firm performance. Mohamed (2016) examined non-financial companies listed on the Nairobi Securities Exchange and found that financial leverage negatively impacts financial performance. The study suggested that firms adopt optimal debt levels and prioritize liquidity management to enhance performance. Similarly, Ullah (2019) reported a negative relationship between leverage and return on assets for Pakistani fertilizer firms, emphasizing the importance of minimizing debt to improve profitability.

In Kenya, Amondi (2020) explored the financial performance of agricultural co-operatives and revealed that higher leverage leads to performance declines. However, a strong interest coverage ratio positively influences financial outcomes, highlighting the need for robust debt-equity management. Contrarily, Rahman et al. (2021) found no significant relationship between leverage and performance in Bahraini industrial firms, suggesting that effective utilization of borrowed funds is critical to mitigating leverage risks. Meanwhile, John et al. (2015) discovered a positive and significant relationship between financial leverage and performance in Nigerian publicly traded hotels, underscoring the importance of aligning financing decisions with shareholder wealth maximization goals.

METHODOLOGY

Research Design

A research design is a structure or framework for performing various kinds of research. It explains how to get the data needed to organize or solve research challenges. In this research, descriptive research is used to analyse the relationship between financial leverage and the firm performance. Using secondary data, this study will explore the measurement that will be used in the investigation. This investigation makes use of a quantitative analytic technique to gather information. The data that will be utilized has been gathered for a period of ten years, beginning in 2011 and continuing through 2020. In business research, it is a kind of data analysis that use empirical testing and numerical measurement to assess the data collected.

Method of Data Analysis

The sample for this research consisted of all Malaysian pharmaceutical companies that were publicly listed on the Malaysian stock exchange, the Bursa Malaysia. The pharmaceutical sector is represented by only seven publicly traded companies on the main market of Bursa Malaysia. The data used in this study is secondary data, and the information was gathered from the Bursa Malaysia stock exchange and the annual reports of each firm from 2011 to 2020, resulting in a panel of observations. The data for this study was gathered from sample firms audited annual reports, which were made available on the internet.

The purpose of this study is to quantify the impact of financial leverage, interest rates, and company size on a business's performance. Multiple regression is a form of regression in which independent variables with known values are used to predict the value of a single dependent variable. Multiple linear regression is used in this study to examine the link between three independent variables (financial leverage, interest rates, and company size) and business performance. The following information will be generated and provided through this regression utilising software (SPSS). The significance threshold for this study will be 5%, and the findings will be characterised as "statistically significant at 5%".

Variables	Symbols	Measurements
Financial Leverage	FL	Debt to equity ratio: Total debt divided by total shareholders' equity
Interest Rates	IR	Interest Coverage Ratio: EBIT or EBITDA divided by the total interest expense. *EBIT is earnings before interest and taxes meanwhile EBITDA is earnings before interest, taxes, depreciation, and amortization
Firm Size	FS	All total assets that include all liabilities and all owner's equity of the company will be multiply by natural logarithm

Table 3.1 Table of Variables

Estimation Model

$$\theta = \alpha + \beta_{t1}X_{t1} + \beta_{t2}X_{t2} + \beta_{t3}X_t + \varepsilon_t$$

$$RP_i = \alpha_i + \theta_i$$

Where;

- θ = Sustainability index, Firm Performance (ROA)
- FL = Financial Leverage;
- IR = Interest Rates; and
- FS = Firm Size

EMPIRICAL RESULTS

Descriptive Analysis is a sort of data analysis that assists in describing, illustrating, or summarizing data points in a constructive manner in order for patterns to develop that satisfy all of the data's conditions. It is a critical stage in undertaking statistical data analysis.

Descriptive statistical analysis is a high-level summary of the data in this research. Return on Assets (ROA) is the first dependent variable that quantifies a business's profitability using financial statement data. Independent factors such as financial leverage and interest rates will be quantified using debt-to-equity ratio and interest coverage ratio, respectively. The standard deviation measures the distance between a sample result and the mean.

Descriptive Statistics

Table 4.1 Descriptive Statistics

	Number of Observations	Mean	Standard Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Standard Error
ROA	66	11.331	13.259	2.029	0.295
FL	66	13.138	30.559	2.941	0.295
IR	66	65.682	146.847	4.645	0.295
FS	66	12.164	1.804	-1.149	0.295

The research used the data for all of the pharmaceutical businesses in Malaysia. It gives the mean value as well as the standard deviation for the variables examined in the research from 2011 to 2020. The highest mean for the above data is the Interest Rate which indicates that it has a broader range of values than the other variables. Average value of the variables could be used to explain the skewness of the whole variable, as shown by the data results in the table above. Since the left tail is longer than the right tail, it is possible to conclude that the distribution has a negative skew. Negative skewed, also known as left-skewed data, are given this name because the "tail" of the distribution is located to the left.

Autocorrelation

Table 4.2 Autocorrelation

Model Summary^b					
Model	R	R Square	Adjusted R Square	Standard Error of the Estimate	Durbin-Watson
1	0.630 ^a	0.397	0.368	10.539	0.987

- a. Predictors: (Constant), FL, IR, FS
b. Dependent Variable: ROA

The data exhibits a positive autocorrelation, which means that a rise in one time series leads to an increase in the second time series that is proportional to the increase observed in the first time series. Because 0.987 is so near to +1, it would seem that one of these independent variables which are Financial Leverage (FL), Interest Rates (IR), and Firm Size (FS) is an excellent positive predictor of the dependent variable firm performance (ROA) for this study.

Heteroscedasticity Test

Table 4.3 Heteroscedasticity Test

Coefficients^a						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Standard Error	Beta	t	Sig.
1	(Constant)	41.714	5.302		7.867	<0.001
	FL	-0.050	0.026	-0.185	-1.958	0.055
	IR	-0.002	0.005	-0.037	-0.384	0.702
	FS	-2.862	0.442	-0.626	-6.479	<0.001

The heteroscedasticity test of data was analysed with the use of the Glejser Test in this particular piece of research. This approach assumes that the dataset should have a symmetrical distribution, a necessary part of the process. It is possible to figure that there is an issue when the Sig. Firm Size (FS) variable is less than 0.001. According to the rejection rule, this research will not reject the null hypothesis at the significance level of 5 per cent if the p-value is above 0.05.

Multicollinearity

Table 4.4 Multicollinearity

Correlations					
		ROA	FL	IR	FS
ROA	Pearson Correlation	1	0.026	-0.144	-0.619**
	Sig. (2-tailed)		0.835	0.249	<0.001
	N	66	66	66	66
FL	Pearson Correlation	0.026	1	-0.111	0.148
	Sig. (2-tailed)	0.835		0.373	0.235
	N	66	66	66	66
IR	Pearson Correlation	-0.144	-0.111	1	0.230
	Sig. (2-tailed)	0.249	0.373		0.063
	N	66	66	66	66
FS	Pearson Correlation	-0.619**	0.148	0.230	1
	Sig. (2-tailed)	<0.001	0.235	0.063	
	N	66	66	66	66

P-value is connected with the correlation coefficient when using two tails. A metric that ranges from -1 to 1 indicates the linear connection between two variables. Because this connection is positive, it can be deduced that a company's performance will be better if it uses debt more in its day-to-day operations. Borrowing cash for growth or investment is considered to as leverage since the objective is to produce more value than is achievable with the loan. The coefficient of correlation between Return on Assets (ROA) and Firm Size (FS) determined by Pearson is -0.619. Since this relationship is negative, this study can conclude that a small company size indicates better success. That is due to the argument that smaller firms are usually more agile and able to grow faster than larger companies. The p-value for the Pearson correlation coefficient between ROA and FS is less than 0.001. The coefficients of correlation between Firm Size (FS) and Interest Rates (IR) according to Pearson are 0.230 and 0.063 respectively. Because this number is positive,

it indicates a positive correlation between these two variables. It is likely that an expansion in the size of a company will result in an increase in the capacity of the business to fulfil its financial obligations.

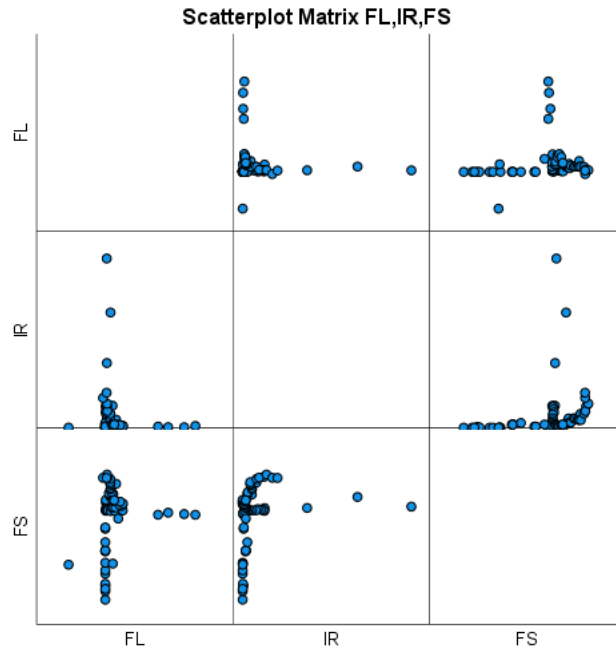


Figure 4.1 Scatter Plot Graph of Pearson Correlation Coefficient

Multiple Regression of Financial Leverage and Firm Performance

Table 4.5 Model Summary of Financial Leverage and Firm Performance

Model Summary				
Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.630 ^a	0.397	0.368	10.539

- a. Predictors: (Constant), FL, IR, FS
- b. Dependent Variable: ROA

The R Square statistic, often known as R2, is the percentage of the total variance in the dependent variable that can be accounted for by the independent variables. The value of R2 is 0.397, implying that the independent factors explain 39.7 per cent of the variance in this case.

Table 4.6 Anova of Financial Leverage and Firm Performance

Anova ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4540.956	3	1513.652	13.628	0.000 ^b
	Residual	6886.195	62	111.068		
	Total	11427.151	65			

- a. Dependent Variable: ROA
- b. Predictors: (Constant), FS, FL, IR

The regression model provides a satisfactory fit to the data. The whole model reaches statistical significance (Sig. 0.000) in explaining the ROA, and its F (3,62) value is 13.628. This indicates that the probability level is less than 0.05.

Table 4.7 Coefficients of Financial Leverage and Firm Performance

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Standard Error	Beta		
1	(Constant)	67.852	9.088		7.466	0.000
	FL	0.053	0.044	0.123	1.221	0.227
	IR	0.002	0.009	0.017	0.169	0.866
	FS	-4.713	0.757	-0.641	-6.225	0.000

a. Dependent Variable: ROA

An equation to estimate Return on Assets (ROA) from Financial Leverage (FL), Interest Rates (IR), and Firm Size (FS) is $ROA = 67.852 - 0.053 FL + 0.002 IR - 4.713FS$. This study looks at the standardized coefficients rather than the unstandardized ones. Firm Size (FS) is the only independent variable providing a substantial unique contribution to the prediction of the dependent variable. Financial Leverage (FL) and Interest Rates (IR) have values larger than 0.05, specifically, 0.227 and 0.866, respectively.

Table 4.12 Formulation of Study Results

Research Hypothesis	Hypothesis Development	Conclusion
H1	There is negative relationship between financial leverage and firm performance	Reject H1
H2	Interest rates of the leverage and firm's performance have negative relationship	H2 accepted. Do not reject H2
H3	The size of a company has a positive association with the financial success of the company, as measured by return on assets (ROA)	Reject H3

This research examined the relationship between the debt-to-equity ratio (DR) and the return on assets (ROA) of pharmaceutical companies in Malaysia. The findings indicate that the objectives of this study were successfully achieved, as evidenced by the hypothesis testing results. While prior studies have often suggested a negative relationship between firm performance and financial leverage, the current study diverges, showing a significant positive impact of financial leverage on business performance (ROA). This result leads to the rejection of the null hypothesis, confirming that financial leverage contributes positively to firm performance.

The study aligns with findings by Hongli et al. (2019), who observed that leveraging 65% of company assets through debt influenced firm performance. Similarly, the conclusion that interest rates on leverage negatively affect performance is consistent with prior research by Iqbal and Usman (2018), Ilyukhin (2015), and Samour and Hassan (2016). For instance, Iqbal and Usman (2018) demonstrated that high-interest rates and debt negatively impact company performance, diminishing shareholder equity value. While financial leverage can discipline management and enhance corporate performance, high-interest rates remain a detrimental factor, as observed in Russian firms.

Firm size was found to positively correlate with Return on Sales, highlighting the tax benefits of leverage for larger firms. Larger firms capitalize on the tax deductibility of debt more effectively than smaller businesses. Consequently, the study rejects the null hypothesis, as the adverse effects of leverage on ROA and ROE are more significant for smaller firms, particularly when measured using the debt-to-equity ratio.

There is a significant negative relationship between the firm performance of pharmaceutical companies in Malaysia, as measured by firm size, and their share price. Financial leverage and interest rates do not show statistical significance in their impact on firm performance. However, employing financial leverage as a management accountability tool may positively influence a company's overall performance. Contrary to initial hypotheses, the relationship between interest rates and the profitability of pharmaceutical firms in Malaysia appears to be weaker than expected. Higher interest rates discourage borrowing and refinancing, reducing the value of company assets and negatively affecting overall performance.

Larger businesses are associated with higher debt risks compared to smaller organizations. However, firm size can also signify growth and development, which tends to elicit positive market responses. Consistent with the pecking order theory, larger firms with greater levels of long-term debt often demonstrate superior business performance compared to smaller firms.

CONCLUSION

The Trade-off Theory of Capital Structure suggests that a firm's financial structure should balance tax incentives with bankruptcy costs. This study finds that financial leverage positively contributes to the profitability of pharmaceutical companies. Malaysian pharmaceutical firms should strategically utilize their resources to finance research and development projects and optimize returns on cash flows. However, larger firms face an increased risk of financial distress, which necessitates careful consideration of their debt-to-capital ratios. Addressing unanticipated expenses, such as high medical costs, is essential to maintaining financial stability. High liquidity enhances financial leverage by enabling efficient capital use, and expanding into biotechnology and medical services could bolster competitiveness in the global market. Pharmaceutical companies in Malaysia should actively explore new opportunities to enhance capital utilization and business growth.

This study highlights a positive relationship between financial leverage and firm performance. A high liquidity ratio supports the efficient use of financial leverage, ensuring funds are effectively allocated. Companies must evaluate financial institutions and banks to identify those offering the most favorable terms for their cash flow needs. Firms with strong financial performance have access to diverse loan options, while banks assess liquidity and performance before extending credit. If a company's interest coverage ratio is too low, it may struggle to repay loans, causing revenue losses for lenders. Therefore, firms should carefully manage leverage to maximize benefits while minimizing financial risks.

The constructive relationship between financial leverage and firm success underscores the potential for Malaysian pharmaceutical companies to capitalize on new opportunities. Larger firms should fully utilize their resources to maximize the benefits of debt financing while considering the costs associated with interest payments. Pharmaceutical companies can leverage borrowing to enhance shareholder wealth, provided the returns on borrowed assets exceed the associated interest costs. By mitigating risks tied to leverage, firms can achieve optimal financial outcomes and secure long-term success.

This study is limited to publicly traded companies listed on Bursa Malaysia's main market, focusing on only seven firms. Future research should include companies outside this market to gain a broader understanding. Additional studies could explore other factors influencing firm performance, as financial leverage alone was not found to have a significant impact. Variables such as short-term and long-term debt, as well as other firm-specific factors, should be investigated to provide a more comprehensive analysis of business performance determinants.

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