



# Leverage's Effect on Corporate Performance Using Firm Size as a Moderating Variable

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**Abstract.** Goals of present research are looking at how financial leverage affects presentation of company, with corporate size as a moderating factor. Real estate businesses that listed in the Jakarta Stock Exchange for years 2018 and 2019 are used as sample in this study. This study collected 40 samples using purposive sampling. Ratio of debt to assets and ratio of debt to equity are two indicators of leverage. Return on assets (ROA) is used to quantify company performance, while the logarithm natural (Ln) of total assets is utilized as a moderating variable to measure business size. This study discovered that DAR and DER had no substantial impact on corporate performance, either concurrently or separately. The relationship between leverage and company success is also unaffected by firm size.

**Keywords:** Leverage · Corporate performance · Firm size · Real estate

## 1 Introduction

Financial statements are one of the report to analyze the company's performance. The sort of analysis varies depend on the parties' individual interests [1]. Trade creditors (suppliers that owe money for goods and services) are mostly concerned with liquidity. Bondholders are concerned in the company's capacity to service their debt over time. They can evaluate this competence by looking at the financial structure, significant sources and funds, and the company's profitability throughout time, and also future profitability projections. Investors are mostly interested on present and expected future earnings, as well as their consistency throughout time. As a result, the majority of investors focus on calculating profitability. They would also be concerned about the company's financial situation in terms of its capacity to pay dividends and avoid bankruptcy.

Operational efficiencies of a company can be seen from its financial performance. Financial performance of a company discloses how it generates revenue from its assets. This is a critical aspect for investors since they typically compare a company's performance to that of its peers to assess whether it is a successful investment [2]. The correlation between capital structure and product markets should analysed in more depth than just analysing if debt hurts or benefits a company's competitive success [3]. According to Campello [3], moderating debt is correlated with sales increases relative

to competitors; conversely, significant indebtedness is associated with product market underperformance.

There are several studies related leverage with firm size [4–8]. Aggarwal et al. [4] stated that although debt reduces the value of low-growth US enterprises, it increases the value of low-growth firms outside the US and in civil law countries. Even after accounting for foreign variances in GDP per capita, stock and bond market development, and banking sector development, these findings are resilient to numerous specifications and sub-sample segmentations.

Cheng & Tzeng [6] discovered that when bankruptcy risk is taken into account, the leverage is greater than that of an unleveraged one. Gweyi & Karanja [5] found positive link between debt equity ratio (DER), return on equity (ROE), and net income after tax (NIAT), just as Cheng & Tzeng [6] did. Opposite with those studies, Hasanzadeh et al. [7] found that financial leverage will not be useful predicting corporate value in the future. Leverage is negatively associated with return on assets and return on equity (ROA and ROE), representing that firms borrow is less, whereas the asset market-to-book ratio is positively correlated with profitability [8]. Those studies showed inconsistency results. As a result, the influence of leverage toward corporate performance will be reinvestigate in this study. Company size is used as moderating variable.

Some scholars have performed research on the impact of leverage on corporate value using the size as moderating variable [9–11]. According to Abbasi & Malik [9], size of company moderates the influence of growth toward corporate value. Farooq [10] came with dissimilar conclusion, claiming that the correlation among leverage and performance are also nonlinear for medium and large enterprises. Mahmood et al. [11] stated that in the WCF–profitability relationship, company size and leverage play important moderating effects.

Based on the background described above, this study can formulate a number of problems: 1) Does leverage have an impact on the performance of a company? 2) Is there a relationship between leverage and corporate performance when size is a moderating variable?

## 2 Theoretical Basis

### 2.1 Leverage

Related with leverage, Ozdagli [12] assumed that as in the trade theory, the enterprise profit from the tax shelter provided by debt restructuring has additional expenses. Based on previous research, the paper claimed that debt has two properties: it is risk-free and endogenously regulated by lenders to a fixed fraction of equity. The financial leverage will cause additional benefits and risks, altering the firm's value and performance. As a result, recognizing the financial leverage is becoming increasingly important for Chinese businesses [13].

Future development potential and funding policy are critical issues in company finance. In perfect capital markets, we may readily assess the influence of capital structure toward firm's performance, and then define the presence of taxes and bankruptcy expenditures. According to Hussain et al. [8], efficiency and financial leverage have a

negative association. Nonetheless, the market-to-book ratio has a favourable relationship with long-term debt and overall debt ratios. Big businesses make the most money, whereas tiny businesses make the least. Profitability is inversely proportional to liquidity. As a result, lower capital costs may be a major factor in Pakistani textile manufacturers' improved performance.

## 2.2 Company Performance

Company performance is different with organizational effectiveness. Organizational effectiveness can be represented by the middle and inner circle. Middle circle represents business performance, and inner circle represents financial performance. Other components of organizational effectiveness are the lack of internal tightness and deficiencies, meeting in legal activities, the achievement of resources, and the accomplishment of goals [14]. Santos & Brito [15] stated that firm value is a subset of organizational effectiveness that includes the results of company's operational and financial.

For businesses with a range of objectives, such as ability to get profit, satisfied all employee satis, increase productivity, conducted corporate social responsibility, and agility, measuring organizational performance can be difficult. Performance can be described as how well a company performs in businesses, taking into account both traditional financial and non-financial aspects.

Ability to get profit, continue to develop, increasing market, customer satisfaction, good employee performance, result of environmental audit, corporate governance performance, and social value are factors of performance that determined by Selvam et al. [16]. These nine factors cannot be used interchangeably because they reflect different considerations of business value and dissimilar users have different needs that must be arranged separately.

Many studies have looked into the various aspects that influence company performance. Calantone et al. [17] discovered that knowledge had a favourable impact on company performance, with innovativeness acting as a mediator. Wright et al. [18] recommended that the greater the enterprise's success, the higher the quality of human resources management. In recent years, customers have increasingly focused about environmental and social responsibilities. More studies have begun to concentrate on the correlation between CSR and corporate performance. According to Mackey et al. [19], investment in CSR initiatives can have a variety of effects on several elements of company performance. Taking on more social responsibility could boost the company's market value, yet future cash flow may remain unchanged.

The proportional mix of stocks and liabilities in funding a firm have been the subjects of many theoretical models and empirical analysis over the years, with the assumption that such a mixture has positive influence on corporate performance [20]. According to the findings of Ojo [20], leverage shocks have a major impact on corporate performance in Nigeria. Furthermore, feedback shock has a greater impact on earnings per share (EPS) than leverage shock. Because Earnings Per Share is the source of the majority of Net Assets Per Share, it has an indirect influence on Net Assets Per Share. Financial indicators, according to Kaplan et al. [21], are one of the important metrics of firm performance in the Balanced Score Card. Profit margin, sales volume, and job opportunity

as a result of their product and service being sold in the marketplace, so they are used to evaluate manufacturing enterprises' performance [22].

### 2.3 Firm Size

According to Niresh and Velnampy [23], the concept of economies of scale is a fundamental factor in determining a firm's profitability in the neoclassical view of the company. John & Adebayo [24] stated that firm size is crucial part of the company performance due to the economies scale today that getting increase. Basically, it indicates that larger firms can outperform smaller firms in terms of cost. The role of firm size was discovered to moderate inspiration between firm expansion and firm performance [9]. According to the findings, management should maintain an eye on business size and expansion while improving firm performance.

According to Mutunga & Owino [25], the correlation among micro variables and financial outcomes can be moderated by size of the company. The study also found that company's size and financial value had positive and significant association. Research also showed a correlation among the moderating variable with micro components and company financial value. The results of the study showed that the association between micro components and financial value of Kenyan manufacturing enterprises are moderated by company size.

## 3 Research Methodology

### 3.1 Operational Variables

The dependent variable (business performance), independent variable (leverage), and moderating variable are all present in this study (firm size). In this study, leverage is measured by ratio of debt to assets (DAR) and ratio of debt to equity Ratio (DER). As a dependent variable, company value is measured by return on assets (ROA). The logarithm natural (Ln) of total assets is used to measure firm size.

### 3.2 Classical Assumptions

This study used four classical assumptions. Those classical assumptions are normality, multicollinearity, autocorrelation, and heteroscedasticity.

### 3.3 Data Analysis

Multiple regression analysis was carried out on the research model for this study. This study also perform performs regression testing to determine whether company size will strengthen or weaken the influence of leverage on company performance. Regression testing against moderate can be measured using the following formula:

$$Y = \alpha + \beta_1 X_1 + \beta_1 \text{Ln } Z + \beta_1 X_1 \cdot \text{Ln } Z + \beta_2 X_2 + \beta_2 \text{Ln } Z + \beta_2 X_2 \cdot \text{Ln } Z + e$$

## 4 Results

In this study, the sample consisted of real estate companies that listed on the Jakarta Stock Exchange years 2018 and 2019. Purposive sampling used in this study. The sample must meet the following criteria: 1) companies periodically issues financial reports each year and has complete data during the observation period, 2) companies generate profits throughout the study period. Based on the criteria this study obtained 20 companies over 2 years, so the number of samples in this study was 40 sample.

Based on the result of normality test, data that used in this study was normally distributed. Results of the autocorrelation test of dependent, independent, and moderating variables indicates that the value of Durbin-Watson is 2.895. The DW value is between  $dU$  and  $4-dU$ , namely  $1.60 < 2.12 > 2.40$  which according to the test rules, it can be decided that the research data is free from autocorrelation symptoms in the regression model.

The results of the multicollinearity test show that all variables have a tolerance value above 0.05 and a VIF below 10.0, indicating that the data is free of multicollinearity symptoms among independent variables in the model of regression. Results of heteroscedasticity test also indicate there is no a symptom of heteroscedasticity.

Result of multiple linear regression can be seen in the Table 1.

The F-test is 1.164 with a significance level of 0.337, according to Table 1 (ANOVA). Because the value is  $0.337 > 0.000$ , it can be stated that this regression model cannot forecast the company's success or that leverage, as measured by DAR and DER, doesn't influence the company's value simultaneously.

The partial impact of DAR and DER can be seen in the Table 2.

The constant value of 4.474 in Table 2 implies that if all independent factors are not present, the company's performance is 4.474. DAR (X1) regression coefficient of 3.358 suggests that as DAR rises, so will the company's performance as evaluated by ROA. While DER (X2) regression coefficient of  $-4.380$  shows that if DER decreases, the company's profitability as assessed by ROA will improve. The significance column in the Table 2 demonstrates that the significance of each ratio, debt to assets (X1) = 0.851 and debt to equity (X2) = 0.425, implying that these ratios have no meaningful impact on firm performance as evaluated by ROA. The influence of leverage on corporate value is determined by using moderate regression analysis with size as a moderating variable. The result of moderate regression analysis is shown in Table 3.

**Table 1.** Result of multiple linear regression.

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F.	Sig
1	Regression	162.623	3	54.208	1.164	.337 <sup>b</sup>
	Residual	1676.899	36	46.581		
	Total	1839.522	39			

a. Dependent variable: ROA

b. Predictors: (Constant), TOTAL ASSET, DER, DAR

**Table 2.** The partial impact of DAR and DER.

Coefficients						
Model		Unstandardized Coefficient		Standardized Coefficient	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.474	12.815		.349	.729
	DAR	3.358	17.785	.093	.189	.851
	DER	-4.380	5.425	-.390	-.807	.425
	TOTAL ASSET	.216	.874	.042	.247	.807

a. Dependent variable: ROA

**Table 3.** Moderate regression analysis.

Model	Standardized Coefficient	t	Sig
X1.LZ	0,185	0,390	0,699
X2.LZ	-,463	-,977	0,335

The moderating impact of leverage on the value of organizations greater than level of significant which is 0.05 ( $\alpha = 5\%$ ) both for DAR (0.699) and DER (0.335). So, it can be concluded that company's value is not considerably moderated by the corporate size.

## 5 Discussion

This study found that leverage has no effect on the company's success. The significance value of 0,337 > 0.05 can be seen in the Anova result. This study suggests that leverage doesn't have an impact on the company's success. Company leverage has negative effect on return of assets and equity in the textile industry in Pakistan [5, 8] investigated savings and credit co-operative societies (Saccos) that licensed by the Sacco Society Regulatory Authority (SASRA) in Kenya and found that ratio of debt equity, return on equity, and income after tax have a positive association.

Because the sig. value of DAR is higher than 0.05 (= 5%), so the leverage doesn't have influence on company performance. Result of this research shows size is unable to meaningfully moderate the association between leverage with company performance. It means that the correlation between leverage and corporate value cannot be strengthened by increasing the size of the company. On the other hand, Mutunga & Owino [25] found that business size has the ability to modify (make the association between micro variables and financial value stronger). Mahmood et al. [11] examined the influence of business size as a moderating variable of the correlation between working capital and profitability in China. The study found that break-even point for small, large, low-leverage, and high-leverage enterprises are lower than the overall break-even threshold. According to the

research, break-even point of the working capital finance–profitability connection varies at the time a company grows or its debt level changed.

## 6 Conclusion

This research examined the influence of leverage toward firm value for real estate companies that listed in Jakarta Stock Exchange. Leverage is measured by ratio of debt to assets and ratio of debt to equity. This study found that debt to asset ratio and debt to equity ratio has no substantial impact on corporate performance, both simultaneously and partially.

The moderating effect of company size is also investigated in this study. This research also indicates that the association among leverage and corporate value cannot be weakened by firm size.

## References

1. Van Horne, J., & Wachowicz, J. (2008). *Fundamentals of financial management* (13th ed.). Prentice Hall Financial Times.
2. Akpata, I. (2017). Firm performance: a reflection of risk management practices and artificial intelligence. *SSRN Electronic Journal*.
3. Campello, M. (2006). Debt financing: Does it boost or hurt firm performance in product markets? *Journal of Financial Economics*, 82(1), 135–172.
4. Aggarwal, R., Kyaw, N. A., Rochelle, N., & Zhao, X. (2008). Leverage and firm value: A global perspective leverage and firm value: A global perspective. *Journal of Economic Literature*.
5. Gweyi, M. O., & Karanja, J. (2014). Effect of financial leverage on financial performance of deposit taking savings and credit co-operative in Kenya. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 4(2), 176–184.
6. Cheng, M. C., & Tzeng, Z. C. (2011). The effect of leverage on firm value and how the firm financial quality influence on this effect. *World Journal of Management*, 3(2), 30–53.
7. Hasanzadeh, R. B., Torabynia, S., Esgandari, K., & Kordbacheh, S. (2013). Evaluating effects of financial leverage on future stock value at stock exchange 2(2), 81–84.
8. Hussain, Z., Rao, H., Akram, B., & Fayyaz, M. (2015). Effect of financial leverage on performance of the firms: Empirical evidence from Pakistan. *SPOUDAI - Journal of Economics and Business*, 65(1–2), 87–95.
9. Abbasi, A., & Malik, Q. A. (2015). Firms' size moderating financial performance in growing firms: An empirical evidence from Pakistan. *International Journal of Economics and Financial Issues*, 5(2), 334–339.
10. Farooq, U., & Jibrán, A. Q. (2017). Firm size as moderator to non-linear leverage-performance relation: An emerging market review. *Binus Business Review*, 8(2), 99.
11. Mahmood, F., Han, D., Ali, N., Mubeen, R., & Shahzad, U. (2019). Moderating effects of firm size and leverage on the working capital finance-profitability relationship: Evidence from China. *Sustainability (Switzerland)*, 11(7), 19–22.
12. Ozdagli, A. K. (2012). Financial leverage, corporate investment, and stock returns. *Review of Financial Studies*, 25(4), 1033–1069.
13. Chen, H. (2020). The impact of financial leverage on firm performance – based on the moderating role of operating leverage 159, 464–473.

14. Cameron, K. (1986). A study of organizational effectiveness and its predictors. *Management Science*, 32(1), 87–112.
15. Santos, J. B., & Brito, L. A. L. (2012). Toward a subjective measurement model for firm performance. *BAR - Brazilian Administration Review*, 9(SPL. ISS), 95–117.
16. Selvam, M., Gayathri, J., Vasanth, V., Lingaraja, K., & Marxiaoli, S. (2016). Determinants of firm performance: A subjective model. *International Journal of Social Science Studies*, 4(7), 90–100.
17. Calantone, S. T., & Cavusgil, Y. Z. (2002). Learning orientation, firm innovation capability, and firm performance, performance. *Industrial Marketing Management*, 31(6), 515–524.
18. Wright, T. M., Gardner, L. M., Moynihan, M. R., & Allen. (2005). The relationship between HR practices and firm performance: examining causal order. *Personnel Psychology*, 58(2), 409–446.
19. Mackey, T. B., Mackey, J. B., & Barney. (2007). Corporate social responsibility and firm performance: investor preferences and corporate strategies. *Academy of Management Review*, 32(3), 817–835.
20. Ojo, A. S. (2012). The effect of financial leverage on corporate performance of some selected companies in Nigeria EFFET DE LEVIER FINANCIER SUR LES RESULTATS DE CERTAINES ENTREPRISES COLLABOREES, SELECTIONNES AU NIGERIA. *Canadian Social Science*, 8(1), 85.
21. Kaplan, R., Norton, D., & Barrows, E. (2008). *Developing the strategy: Vision, values gaps, and analysis* (p. 236). Harvard Business School Press.
22. Kiganane, L. N. (2013). The Perceived effect of Mobile Phones Services on performance of manufacturing firms in Thika Town. Unpublished Ph. D thesis. Juja: JKUAT. McLarney.
23. Niresh, A., & Thirunavukkarasu, V. (2014). Firm size and profitability: a study of listed manufacturing firms in Sri Lanka. *International Journal of Business and Management*, 9(4).
24. John, A. O., & Adebayo, O. (2013). The effect of firm size on profitability: Evidence from Turkish manufacturing sector. *Prime Journal of Business Administration and Management*, 3(9).
25. Mutunga, D., & Owino, E. (2017). Moderating role of firm size on the relationship between micro factors and financial performance of manufacturing firms in Kenya. *Journal of Finance and Accounting*, 1(2), 14–27.

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