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IMPACT OF CAPITAL STRUCTURE ON FIRM PERFORMANCE

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Abstract
This research looks at how a company's mix of debt and equity affects how well it performs by analyzing relationship between the Debt–Equity Ratio (DER), sales growth and key performance indicators: Return on Assets (ROA), Return on Equity (ROE) and Price-to-Book Value (PBV). Both primary data collected through a structured questionnaire (126 responses) and secondary data from 25 companies across five sectors, namely: IT, Infrastructure, Pharmaceuticals, Automobile, and FMCG; for the period of 5 years from 2021 to 2025. Statistical techniques including Cronbach's Alpha for reliability, Descriptive Statistics, Pearson Correlation, Linear Regression, ANOVA (f-test), Coefficient analysis (t-test) and Multicollinearity test (VIF and tolerance) were done to evaluate the relationships using Excel and JASP software. Primary data findings indicate a strong positive association between capital structure and firm performance. However, secondary data reveal sector-specific variations, with leverage improving performance in some industries while negatively affecting others. The study concludes that an optimal balance between debt and equity, aligned with industry characteristics and growth strategies, is essential for enhancing firm performance and market value.

Index Terms — Capital Structure, Firm Performance, Debt Equity Ratio, ROA, ROE

Introduction

In the modern corporate environment, financial decisions are important in figuring out firm's sustainability, competitiveness, and growth. Among these decisions, the decision on how much debt and equity to use to fund the business is one of the most important strategic choice for financial managers. An optimal capital structure helps companies to reduce the cost of capital, increase the value for shareholders and improve overall financial performance.

Capital structure decisions influence not only profitability but also operational efficiency, growth potential, and market perception. Financial leverage can enhance returns to shareholders when used efficiently, yet excessive debt increases interest obligations and financial risk. Investors and analysts often interpret leverage levels as signals of financial stability and growth prospects, making capital structure a determinant of market valuation.

In emerging economies such as India, capital structure decisions are especially important due to dynamic market conditions, varying interest rates, regulatory frameworks, and sector- specific financing needs. Different industries exhibit different leverage patterns; for instance, infrastructure firms often rely heavily on debt financing, while IT and FMCG firms may maintain lower leverage ratios. The same was observed in the study as well. Understanding sectoral differences is therefore essential to evaluate how financing choices influence performance.

This study looks at how a company's financial structure affects its performance by looking at some chosen firms across 5 sectors: IT, Infrastructure, Pharmaceuticals, Automobile and FMCG. Firm performance is measured using financial indicators.

Using a quantitative approach, the research combines primary data collected through a structured questionnaire with secondary financial data from company reports and financial databases. Statistical tools including Cronbach's Alpha for reliability, Descriptive Statistics, Pearson Correlation, Linear Regression, ANOVA (f-test), Coefficient analysis (t-test) and Multicollinearity test (VIF and tolerance) are used to evaluate relationships and test hypotheses.

By investigating how capital structure decisions influence profitability, shareholder returns, and market valuation across sectors, this study aims to provide insights that can assist managers, investors, and policymakers in making informed financing decisions. The findings contribute to the broader understanding of capital structure decisions in a developing economy (India to be precise) and highlight the importance of maintaining an optimal balance between debt and equity.

Literature Review

Table 1: Summary of data collection methods found in the literature, in descending chronological order

Year	Author(s)	Study Area	Data Collection Method	Data Collected	Sample Size & Period
2025	Bhuvanashree, & Reddy, R.	India	Secondary data from RBI, Moneycontrol, and Screener.in	Financial and profitability ratios (ROE, ROA, EPS, EBIT)	10 major Indian companies from 5 sectors (2020 - 2024)
2025	Gnanaprasuna, E., et al.	India	Bombay Stock Exchange (BSE)	Financial performance indicators (ROA, ROE, NPM, GPM, Stock Price) and Capital Structure (TDR, LTDR)	289 listed non-financial firms (2018 – 2023)
2025	Arhinful, R., Amin, H. I. M., Mensah, L., Gyamfi, B. K., & Obeng, H. A.	US	New York Stock Exchange (NYSE)	Financial performance indicators (ROA, ROE) and capital structure configurations	750 non-financial firms across 17 sectors (2003–2020)
2025	Kamble, R., Mahankal, M., & Jojare, Y.	India	Secondary data from Moneycontrol	ROE, ROA, EPS, EBIT, Debt-to-Equity ratio	5 publicly listed firms from diverse industries (2020– 2024)
2025	Malik, T.	Saudi Arabia	Survey	Hypothesized relationships were tested for: • Strategic Financial Planning • Corporate Governance • Capital Structure • Firm Performance	300 senior finance and strategy professionals working in large diversified business groups across Riyadh and Jeddah
2025	Barakzai, A., & Doğukanli, H.	5 NEST emerging countries (Poland, Thailand, Sri Lanka, Saudi Arabia, and Chile)	Secondary data from annual reports, official websites of financial companies, including Morningstar & Finbox.	Capital structure indicators (STD, LTD) and performance indicators (ROA, ROE, EBITDA)	151 companies from 5 NEST emerging countries (2011-2019)

2025	Ekanayake, N. P. K., Silva, N. K. L., & Tholangamuwa, T. G. A. S.	South Asia	Secondary data from annual reports, official websites of companies, verified stock exchange portals	Financial data including debt- to-equity, debt- to-asset ratios, and ROE	37 publicly listed manufacturing companies (2019-2023)
2025	Nikmah, C., & Hung, R. J.	Indonesia	Secondary data, comprising financial ratios and corporate governance data from the annual report of firms	Financial ratios, corporate governance and capital structure data	36 non- financial firms listed at the Indonesia Shariah Stock Indexed (ISSI) (2015- 2020)
2025	Ashiq, A., Guoxing, Z., Tabasam, A. H., & Tahir, S. H.	Pakistan	Secondary data from companies' annual reports, the Pakistan Stock Exchange, the Pakistan Bureau of Statistics, the Business Recorder, and the State Bank of Pakistan	CSR indicators, managerial ability, capital structure, and performance metrics (TQ, ROA, ROE)	219 non-financial firms listed on the Pakistan Stock Exchange (2008-2021)
2025	Nguyen, T. X., Tran, M. D., & Do, D. T.	Vietnam	Financial statements and other corporate reports	Financial ratios	116 feed producers (animal feed processing industry) (2010- 2022)
2024	Prasad, N., Verma, M. K., Tanwar, N., & Kumar, M.	India	Secondary data from Prowess, a database maintained by the Centre for Monitoring Indian Economy (CMIE), and annual financial standalone data	Financial ratios	Top 20 pharmaceutical companies listed on NSE (2018-2022)
2024	Hasan, M. M., & Ohee, A. A.	Bangladesh	Secondary data from DSE publications, Bangladesh Bank, and the annual reports of the sampled companies	Financial performance and risk metrics related to capital structure	120 DSE-listed manufacturing companies (2017-2023)
2024	Prenaj, V., Miftari, I., & Pula, L	Kosovo	Secondary data from financial	Financial ratios	50 non-listed companies (2015- 2020)

			statements of companies		
2023	Yao, A.	Global	Essays and analytical research expanding on key research points/models	Comparative analysis of models (MM Theory, CAPM) and industry- specific data	Multi-perspective investigation (qualitative synthesis)
2022	Olusola, B. E., Mengze, H., Chimezie, M. E., & Chinedum, A. P.	Hong Kong, China	Secondary data from financial reports	Financial ratios	202 companies listed in HKES, with 1010 observations (2014- 2018)
2022	Cuevas-Vargas, H., Cortés-Palacios, H. A., & Lozano-García, J. J.	Aguascalientes, Mexico	Primary data via a self- administered questionnaire	Cross-sectional quantitative data from manufacturing SMEs	220 managers or business owners
2022	Vidhyadevi, B., & Swarupa, P. U.	India	Secondary data from respective companies' websites	Financial metrics: Debt Equity Ratio (DER), Total Debt to Total Assets Ratio (TDTAR), ROE, ROA, and Return on Capital Employed (ROCE)	6 companies listed on BSE under the automobile – two-wheeler and three- wheeler manufacturing sector (2012-2021)
2021	Kalash, I.	Turkey	Carbon Disclosure Project, Turkey climate change reports and Istanbul Stock Exchange	Environmental performance scores, Return on Assets (ROA), Operating Profitability, Return on Equity (ROE), Stock Returns, and Firm Leverage	49 firms listed on Istanbul Stock Exchange (2014-2019)
2021	Riaz, M., Jinghong, S., & Akhtar, M. N.	G-7 countries (UK, US, France, Germany, Italy, Canada and Japan)	Financial statements from World Stock Exchange and Thomson Reuters Data Stream	Financial indicators including fixed assets, tangible assets, taxes, net cash, profitability, and debt levels (Total Debt, Long-term debt, Short-term debt)	167 registered manufacturing companies (2007-2018)

2020	Kafle, N., & Ghimire, S.	India	Secondary data from annual reports	Data on short-term debt, long-term debt, preferred stock, and common stock (equity) to analyze the mixture of funds	20 companies listed in Bombay Stock Exchange (BSE) included in Sensex (2014-2019)
2020	Nini, Patrisia, D., & Nurofik, A.	Indonesia	Secondary data from Indonesia Stock Exchange (IDX)	Financial data for Market Total Leverage, Market Long- Term Leverage, Market Short- Term Leverage, Return on Equity (ROE), and Price to Book Value (PBV)	333 companies (2014- 2018)

Table 2: Summary of Key Determinants of Firm Performance related to Capital Structure found in the Literature

Here, the dependent variables refer to that of the firm performance (i.e. the effect) and independent variables, both positive and negative are the capital structure variables (i.e. the cause).

Year	**Author(s)**	**Modelling Approach**	**Dependent Variables**	**Independent Variables (Positive)**	**Independent Variables (Negative)**
2025	Bhuvanashree, & Reddy, R.	Statistical tools (like comparative analysis), and financial performance ratios	Firm profitability, efficiency, and market valuation	Balanced capital structure	Excessive reliance on debt
2025	Gnanaprasuna, E., et al.	Two-step GMM estimation	ROA, ROE, NPM, GPM, Stock Price	Effective capital structure	Total debt ratio (TDR), Long-term debt ratio (LTDR)
2025	Arhinful, R., Amin, H. I. M., Mensah, L., Gyamfi, B. K., & Obeng, H. A.	Random effect, fixed effect, and two-step GMM	ROA, ROE	Debt financing (at 50%, 61.8%, 70%); Equity (at 30%, 38.2%, 50% for ROA)	Excess long-term debt (due to interest costs); Equity financing (at certain levels for ROE)
2025	Kamble, R., Mahankal, M., & Jojare, Y.	Analysis of key financial ratios	ROE, ROA, EBIT	Optimized debt-to-equity ratio (industry-dependent)	High debt-to- equity in volatile industries

2025	Malik, T.	Structural Equation Modeling (SEM)	Firm Performance (Strategic & Financial)	Strategic financial planning, Corporate governance, Optimized capital structure	Lack of transparency and accountability
2025	Barakzai, A., & Doğukanli, H.	Descriptive statistics, correlation analysis, multiple regression model, model statistics	ROA, ROE	Effective combination of financing sources	High financial leverage (STD and LTD)
2025	Ekanayake, N. P. K., Silva, N. K. L., & Tholangamuwa, T. G. A. S.	Descriptive statistics, correlation analysis, main diagnostic tests, regression analysis	ROE	Optimal mix of debt and equity	Debt-to-equity ratio, Debt-to- asset ratio, Excessive debt
2025	Nikmah, C., & Hung, R. J.	Structural equation modelling - partial lease square (SEM-PLS)	Firm performance and Firm value	Corporate governance	Capital Structure
2025	Ashiq, A., Guoxing, Z., Tabasam, A. H., & Tahir, S. H.	Fixed-effect regression with robust standard errors	Firm Performance (FP)	Managerial ability (MA), Capital structure, CSR	Heteroscedasticity and autocorrelation (statistical concerns addressed)
2025	Nguyen, T. X., Tran, M. D., & Do, D. T.	GMM dynamic regression	Performance	Firm size (as a moderator), Foreign investment	Capital structure (Debt ratio)
2024	Prasad, N., Verma, M. K., Tanwar, N., & Kumar, M.	Panel data regression analysis using SPSS statistical software	ROE, ROA, EPS, and Tobin's Q	None	Short-term debt ratio, long-term debt ratio, and total debt ratio
2024	Hasan, M. M., & Ohee, A. A.	Multivariate Ordinary Least Squares (OLS) regression using SPSS,	ROE, ROA, EPS, and Tobin's Q	Market capitalization and Total Assets	Debt to Book Value Equity Ratio (DE) and Debt to Market Value Equity Ratio (DME)

		Eviews 12.0, and Microsoft Excel software.			
2024	Prenaj, V., Miftari, I., & Pula, L	Regression methods 'pooled OLS', 'fixed effects (FE)', and 'random effects (RE)' were used, Hausman test	Return on Assets (ROA) and Return on Equity (ROE)	Capital structure (specifically impacting ROE positively)	Short-term debt, long-term debt, and total debt (impacting ROA)
2023	Yao, A.	Comparative Analysis (MM Theory vs. CAPM; Industry/ Country comparison)	Company Performance (Profitability, Asset operation, Solvency)	Self-owned capital/ Equity, Optimal Financial Leverage	High Debt Ratio (in specific asset structures)
2022	Olusola, B. E., Mengze, H., Chimezie, M. E., & Chinedum, A. P.	Panel data regression analysis	Return on Assets (ROA)	Institutional ownership	Long-term debt ratio (LTDR) (small effect), Ownership concentration, Blockholder dispersion
2022	Cuevas-Vargas, H., Cortés-Palacios, H. A., & Lozano- García, J. J.	Partial Least Squares Structural Equation Modeling (PLS-SEM)	Firm Performance and Innovation	Capital Structure (on Innovation) and Innovation (on Firm Performance)	Technological uncertainty (on Innovation) and internal sources of financing (can have a direct negative relationship)
2022	Vidhyadevi, B., & Swarupa, P. U.	Descriptive statistics, Correlation, and Regression	Firm Performance (ROE, ROA, ROCE)	None	Debt Equity Ratio (DER) and Total Debt to Total Assets Ratio (TDTAR)
2021	Kalash, I.	OLS and Binary Logistic Regression	Leverage, ROA, Operating Profitability, ROE	Environmental Performance	None
2021	Riaz, M., Jinghong, S., & Akhtar, M. N.	OLS and Generalized Method of Moments (GMM)	Debt level (Capital Structure)	Fixed Assets, Tangible Assets, Taxes, Net Cash, Profitability	None
2020	Kafle, N., & Ghimire, S.	Comparative analysis (Pre	Profitability, Market Value	Optimal Mixture	High Debt (Trade-offs)

		& Post Ind AS adoption)			
2020	Nini, Patrisia, D., & Nurofik, A.	Multiple regression analysis	ROE, Price to Book Value (PBV)	None	MTLEV, MLLEV, MSLEV

Table 3: Summary of methods used in the literature

Method	**Studies**
Fixed Effects / Random Effects Regression	Ashiq, Guoxing, Tabasam, and Tahir (2025); Prenaj, Miftari, and Pula (2024)
GMM (Generalized Method of Moments)	Gnanaprasuna et al. (2025); Nguyen, Tran, and Do (2025); Riaz, Jinghong, and Akhtar (2021)
Structural Equation Modelling (SEM)	Malik (2025); Cuevas-Vargas, Cortés-Palacios, and Lozano-García (2022)
Panel Data Regression Analysis	Arhinful et al. (2025); Ekanayake, Silva, and Tholangamuwa (2025); Prasad, Verma, Tanwar, and Kumar (2024)
Multiple / OLS Regression	Barakzai and Doğukanli (2025); Hasan and Ohee (2024); Vidhyadevi and Swarupa (2022); Kalash (2021); Kafle and Ghimire (2020); Nini, Patrisia, and Nurofik (2020)
Binary Logistic Regression	Kalash (2021)
Comparative / Ratio Analysis	Bhuvanashree and Reddy (2025); Kamble, Mahankal, and Jojare (2025)
Literature Review / Theoretical Analysis	Yao (2023)
Moderation / Mediation Analysis	Ashiq et al. (2025); Nguyen et al. (2025); Nikmah and Hung (2025); Cuevas-Vargas et al. (2022)

Table 4: Summary of the Impact of Capital Structure on Firm Performance from the Literature

Year	**Author(s)**	**Capital Structure Measure**	**Positive Impact**	**Negative Impact**	**Neutral/ Mixed Impact**
2025	Bhuvanashree, & Reddy, R.	Balanced capital structure	√		
		Excessive debt reliance		√	
2025	Gnanaprasuna, E., et al.	Long term debt, dividend payout, asset tangibility		√	
		Firm size, sales growth	√		
2025	Arhinful, R., Amin, H. I. M., Mensah, L., Gyamfi, B. K., & Obeng, H. A.	Specific debt/equity configurations (e.g., 70/30, 50/50)	√		
2025	Kamble, R., Mahankal, M., & Jojare, Y.	Debt-to-equity ratio			√

2025	Malik, T.	Capital structure optimization	√		
2025	Barakzai, A., & Doğukanli, H.	Financial leverage (STD, LTD)		√	
2025	Ekanayake, N. P. K., Silva, N. K. L., & Tholangamuwa, T. G. A. S.	Debt-to-equity and debt-to-asset ratios		√	
2025	Nikmah, C., & Hung, R. J.	External funding/capital structure		√	
2025	Ashiq, A., Guoxing, Z., Tabasam, A. H., & Tahir, S. H.	Debt-to-equity/Capital structure	√		
2025	Nguyen, T. X., Tran, M. D., & Do, D. T.	Debt ratio/capital structure		√	
2024	Prasad, N., Verma, M. K., Tanwar, N., & Kumar, M.	Long-term, short-term, and total debt ratios		√	
2024	Hasan, M. M., & Ohee, A. A.	Debt to market value of equity ratio, market capitalization, total assets	√		
		Firm size, multiple financial ratios:			√
2024	Prenaj, V., Miftari, I., & Pula, L	Short-term debt, long-term debt, and total debt ratios			√
2023	Yao, A.	Self-owned capital, Long-term liabilities, Short- term liabilities, Debt ratio			√
2022	Olusola, B. E., Mengze, H., Chimezie, M. E., & Chinedum, A. P.	Total Debt Ratio (TDR)	√		
		Long-term Debt Ratio (LTDR)		√	
2022	Cuevas-Vargas, H., Cortés-Palacios, H. A., & Lozano-García, J. J.	Liabilities and Equity (Capital Structure as a construct)			√
2022	Vidhyadevi, B., & Swarupa, P. U.	Debt Equity Ratio (DER), Total Debt to Total Assets Ratio (TDTAR)		√	

2021	Kalash, I.	Firm Leverage	√		
2021	Riaz, M., Jinghong, S., & Akhtar, M. N.	Total Debt (TD), Long-term debt (LTD), Short-term debt (STD)	√		
2020	Kafle, N., & Ghimire, S.	Debt-Equity Mix (Short/Long term debt, Preferred/Common stock)			√
2020	Nini, Patrisia, D., & Nurofik, A.	Market Total Leverage (MTLEV), Market Long-Term Leverage (MLLEV), Market Short-Term Leverage (MSLEV)		√	

Hypothesis Testing

Objective 1: To check how capital structure, specifically debt-to-equity ratio, affects return on assets.
H0: DER does not have a significant effect on ROA. H1: DER does have a significant effect on ROA.

Objective 2: To check how the capital structure, specifically the debt-to-equity ratio, affects Return on Equity
H0: DER does not have a significant effect on ROE H1: DER does have a significant effect on ROE

Objective 3: To check how the capital structure, specifically the debt-to-equity ratio, affects price to book value.
H0: DER does not have a significant effect on PBV H1: DR does have a significant effect on PBV

Objective 4: To check how sales growth impacts the overall performance of a firm, measured by ROA, ROE and PBV.
H0: Sales growth does not have a significant effect on ROA, ROE or PBV H1: Sales growth does have a significant effect on ROA, ROE and PBV

Objective 5: To compare how the capital structure effects firm performance across 5 different sectors
H0: The effect of capital structure on firm performance is similar across all sectors (IT, Infrastructure, Pharmaceuticals, Automobile, FMCG)
H1: The effect of capital structure on firm performance differs significantly across these 5 sectors (IT, Infrastructure, Pharmaceuticals, Automobile, FMCG)

Research Methodology

Research Design: The research design is descriptive and causal-comparative.

- It is descriptive as the current state of capital structure and performance metrics is being explained.
- It is causal-comparative because impact of IVs (DER and Sales Growth – Capital structure variables) is being examined on DVs (ROA, ROE, PBV – firm performance variables).

Approach: Quantitative approach has been followed.
Sampling Technique: Purposive sampling (as specific firms from 5 different sectors are selected).
Data Collection Method: Both primary and secondary data methods are used.

- Primary Data: Use of a questionnaire with 17 questions was done. A total of 126 responses were collected.
- Secondary Data: 5 sectors with 5 companies each were selected (total 25 companies). Data from 2021 to 2025 were collected from annual reports, Moneycontrol and Finology website.

Tools for Analysis: Cronbach's Alpha for reliability, Descriptive Statistics, Pearson Correlation, Linear Regression, ANOVA (f-test), Coefficient analysis (t-test) and Multicollinearity test (VIF and tolerance). These tests were performed using Excel and JASP software.
Variables Used: A total of 5 variables were used (2 IVs and 3DVs).

- Independent Variables: DER and Sales Growth.
- Dependent Variables: ROA, ROE and PBV.

Data Analysis

Primary Data Analysis Table 5: Reliability Test Cronbach's Alpha of DER

Coefficient	Estimate
Coefficient α	0.923

Item-rest correlation of DER

Item	Estimate
Companies use mix of debt and equity	0.928
Higher DER increases financial risk	0.578
Optimal DER improves efficiency	0.938
Debt attractive due to tax benefits	0.864

Cronbach's Alpha of ROA

Coefficient	Estimate
Coefficient α	0.893

Item-rest correlation of ROA

Item	Estimate
Efficient asset use improves ROA	0.867
High interest burden reduces ROA	0.663
Lower debt improves ROA stability	0.858

Cronbach's Alpha of ROE

Coefficient	Estimate
Coefficient α	0.948

Item-rest correlation of ROE

Item	Estimate
Leverage increases shareholder returns	0.902
Effective debt use improves ROE	0.902

Cronbach's Alpha of PBV

Coefficient	Estimate

Coefficient α	0.974

Item-rest correlation of PBV

Item	Estimate
Balanced capital structure valued by investors	0.942
Capital structure affects market valuation	0.942
Stable profitability leads to higher PBV	0.948

Cronbach's Alpha of Sales Growth

Coefficient	Estimate
Coefficient α	0.937

Item-rest correlation of Sales Growth

Item	Estimate
Debt supports sales growth	0.883
Sales growth improves firm performance	0.883

Cronbach's Alpha values for all variables (DER, ROA, ROE, PBV, Sales Growth) range from 0.893 to 0.974, which is much higher than the standard of 0.70.

It shows that the questions in the questionnaire are consistently measuring what they are supposed to, and the results are reliable.

Table 6: Descriptive Statistics

Descriptive Statistics of DER

Parameters	Companies use mix of debt and equity	Higher DER increases financial risk	Optimal DER improves efficiency	Debt attractive due to tax benefits
Count	126	126	126	126
Mean	4.063	4.214	4.079	4.175
Std. Deviation	0.629	0.515	0.615	0.646
Skewness	-0.048	0.262	-0.046	-0.181
Kurtosis	-0.441	-0.006	-0.329	-0.638

Descriptive Statistics of ROA

Parameters	Efficient asset use improves ROA	High interest burden reduces ROA	Lower debt improves ROA stability

Count	126	126	126
Mean	4.111	4.111	4.095
Std. Deviation	0.635	0.569	0.650
Skewness	-0.095	0.015	-0.095
Kurtosis	-0.519	0.040	-0.617

Descriptive Statistics of ROE

Parameters	Leverage increases shareholder returns	Effective debt use improves ROE
Count	126	126
Mean	4.143	4.143
Std. Deviation	0.654	0.616

Parameters	Leverage increases shareholder returns	Effective debt use improves ROE
Skewness	-0.153	-0.094
Kurtosis	-0.665	-0.410

Descriptive Statistics of PBV

Parameters	Balanced capital structure valued by investors	Capital structure affects market valuation	Stable profitability leads to higher PBV
Count	126	126	126
Mean	4.119	4.119	4.111
Std. Deviation	0.640	0.640	0.610
Skewness	-0.109	-0.109	-0.059
Kurtosis	-0.559	-0.559	-0.321

Descriptive Statistics of Sales Growth

Parameters	Debt supports sales growth	Sales growth improves firm performance
Count	126	126
Mean	4.175	4.143
Std. Deviation	0.670	0.701
Skewness	-0.218	-0.488
Kurtosis	-0.776	0.133

• The Mean values across all variables (DER, ROA, ROE, PBV, and Sales Growth) are remarkably consistent, hovering between 4.06 and 4.21.
– This suggests that on a Likert scale (likely 1–5), respondents generally agree with the statements provided.
– The highest level of agreement is seen in the belief that "Higher DER increases financial risk" (4.214).
• The Standard Deviation ranges from 0.515 to 0.701. These relatively low values indicate that the responses are tightly clustered around the mean.

• Skewness: Most variables show negative skewness (values like -0.048 to -0.488). This confirms the data is "back-heavy," meaning most scores are on the higher end (4s and 5s).
• Kurtosis: Most values are negative (Platykurtic). This indicates a flatter distribution with thinner tails than a normal distribution—basically, there are fewer extreme outliers in the data.

Table 7: Pearson's Correlations

			Pearson's r
Mean DER	-	Mean ROA	0.977
Mean DER	-	Mean ROE	0.957
Mean DER	-	Mean PBV	0.969
Mean Sales Growth	-	Mean ROA	0.921
Mean Sales Growth	-	Mean ROE	0.945
Mean Sales Growth	-	Mean PBV	0.949

The Pearson correlation analysis indicates a strong positive relationship between the debt–equity ratio and firm performance indicators. The mean DER has a very strong positive relationship with ROA, ROE, and PBV, with correlation coefficients of 0.977, 0.957 and 0.969 respectively. Similarly, sales growth is strongly positively correlated with ROA (r = 0.921), ROE (r = 0.945), and PBV (r = 0.949).
This suggests that respondents perceive higher leverage and sales growth to be associated with improved firm performance. The strong correlations may be attributed to the perceptual and self- reported nature of the data.

Table 8: Linear Regression

Model statistics of Mean ROA

Model	R	R^2	Adjusted R^2	RMSE
M_0	0.000	0.000	0.000	0.562
M_1	0.978	0.956	0.955	0.119

Here, M_1 denotes mean DER and mean sales growth.

ANOVA

Model		Sum of Squares	df	Mean Square	F	p
M_1	Regression	37.748	2	18.874	1342	< .001

Coefficients

							Collinearity Statistics	
Model		Unstandardized	Standard Error	Standardized	t	p	Tolerance	VIF
M_0	(Intercept)	4.106	0.050		82.009	< .001		
M_1	(Intercept)	-0.016	0.084		-0.187	.852		
	Mean DER	0.901	0.052	0.872	17.378	< .001	0.142	7.062
	Mean Sales Growth	0.096	0.042	0.113	2.261	.026	0.142	7.062

Here, M_1 denotes mean DER and mean sales growth.

ANOVA

Model		Sum of Squares	df	Mean Square	F	p
	Residual	1.730	123	0.014		
	Total	39.478	125			

Note. M_1 includes Mean DER, Mean Sales Growth

Linear Regression

Model statistics of Mean ROE

Model	R	R^2	Adjusted R^2	RMSE
M_0	0.000	0.000	0.000	0.619
M_1	0.969	0.940	0.939	0.153

Here, M_1 denotes Mean DER, Mean Sales Growth

ANOVA

Model		Sum of Squares	df	Mean Square	F	p
M_1	Regression	45.046	2	22.523	961.0	< .001
	Residual	2.883	123	0.023		
	Total	47.929	125			

Note that the intercept model is not included because it doesn't provide any useful information.

Coefficients

							Collinearity Statistics	
Model		Unstandardized	Standard Error	Standardized	t	p	Tolerance	VIF
M_0	(Intercept)	4.143	0.055		75.101	< .001		
M_1	(Intercept)	-0.162	0.109		-1.489	.139		
	Mean DER	0.660	0.067	0.579	9.860	< .001	0.142	7.062

Coefficients

							Collinearity Statistics	
Model		Unstandardized	Standard Error	Standardized	t	p	Tolerance	VIF
	Mean Sales Growth	0.380	0.055	0.408	6.940	< .001	0.142	7.062

Linear Regression

Model Statistics of PBV mean

Model	R	R^2	Adjusted R^2	RMSE
M_0	0.000	0.000	0.000	0.614
M_1	0.979	0.958	0.957	0.127

M_1 = Mean DER and Mean Sales Growth

ANOVA

Model		Sum of Squares	df	Mean Square	F	p
M_1	Regression	45.197	2	22.598	1400	< .001
	Residual	1.985	123	0.016		
	Total	47.182	125			

Note. M_1 includes Mean DER, Sales Growth mean

Coefficients

							Collinearity Statistics	
Model		Unstandardized	Standard Error	Standardized	t	p	Tolerance	VIF
M_0	(Intercept)	4.116	0.055		75.209	< .001		

M_1	(Intercept)	-0.232	0.090		-2.567	.011		
	Mean DER	0.714	0.056	0.632	12.865	< .001	0.142	7.062
	Mean Sales Growth	0.336	0.045	0.364	7.398	< .001	0.142	7.062

1. Model Summary Table

This assesses the overall "power" of the research model (M1) compared to a baseline (M0).

M0 is the Intercept-only model. It includes no predictors (no DER, no Sales Growth). It only calculates the mean of the dependent variable (ROA).

M_1 includes Mean DER, Mean Sales Growth.

- R (Multiple Correlation Coefficient) measures the strength of the relationship. The values (0.978 for ROA, 0.969 for ROE, 0.979 for PBV) indicate an extremely strong positive relationship between the IVs and performance variables.
- R^2 (R-Squared) shows the percentage of variance. Like in the ROA model, the IVs explain 95.6% of the changes in ROA.
- Adjusted R^2 is a more accurate version of R^2 for multiple variables. Values above 0.90 across all models suggest that the chosen IVs are highly relevant and the model is not overfitted.

- RMSE (Root Mean Square Error) measures prediction error. The low values in M1 (ranging from 0.119 to 0.153) show that your model's predictions are very close to the actual survey responses.

2. ANOVA Table

This table acts as a "gatekeeper" to prove that the model is statistically valid.

- Sum of Squares (Regression vs. Residual): Compares explained variation to unexplained "error". In all three models, the Regression sum is massive compared to the Residual, meaning the model explains almost everything.
- df (Degrees of Freedom):
  - 2: The 2 predictors or IVs (DER and Sales Growth).
  - 123: Relates to the sample size (likely 126 respondents).
- F-Value: A ratio of explained to unexplained variance. The F-values (ranging from 961 to 1400) are high in a good way.
- p-value: Since $p < .001$ for all models, the results are highly significant, meaning there is nearly zero chance these results happened by accident.

3. Coefficients Table

It shows the specific impact of each individual IV.

- Unstandardized B: It shows the "real-world" effect. Like in ROE Model, for every 1- unit increase in Mean DER, Mean ROE increases by 0.660 units.
- Standard Error: Measures the stability of the B-value. The low errors (around 0.04 to 0.10) indicate precise estimates.
- Standardized (Beta): Compares the variables by bringing them at similar scale or level (standard deviation). Like in the ROA model, Mean DER (0.872) has a much larger impact than Sales Growth (0.113).
- t and p values: Tests if each variable is a significant IV on its own.
  - Mean DER is significant across all models ($p < .001$).
  - Mean Sales Growth is also significant across all models ($p = .026$ for ROA and $p < .001$ for others).

Secondary Data Analysis Table 9: Descriptive Statistics

IT sector Descriptive Statistics	DER	Sales Growth %	ROA	ROE	PBV
Mean	0.06	8.88	16.59	25.93	6.75
Standard Error	0.01	1.56	1.43	2.34	0.86
Standard Deviation	0.07	7.79	7.13	11.69	4.28
Sample Variance	0.01	60.62	50.88	136.56	18.31
Kurtosis	0.65	-0.23	-0.21	0.12	-0.32
Skewness	1.35	0.70	0.79	0.99	1.06
Range	0.23	30.40	25.92	42.40	12.96
Minimum	0.00	-2.40	5.42	8.84	2.58
Maximum	0.23	28.00	31.34	51.24	15.54
Count	25.00	25.00	25.00	25.00	25.00

Infrastructure sector Descriptive Statistics	DER	Sales Growth %	ROA	ROE	PBV
Mean	-3.87	11.87	2.61	9.52	-2.02
Standard Error	2.28	3.89	0.72	1.57	2.29
Standard Deviation	11.38	19.44	3.62	7.85	11.47
Sample Variance	129.55	377.94	13.13	61.69	131.52
Kurtosis	4.61	6.38	1.32	1.50	1.78
Skewness	-2.30	-1.99	0.30	0.84	-1.82
Range	42.91	102.50	17.61	32.68	36.87
Minimum	-40.29	-57.40	-5.59	0.00	-30.86
Maximum	2.62	45.10	12.02	32.68	6.01
Count	25.00	25.00	25.00	25.00	25.00

Pharmaceuticals sector Descriptive Statistics	DER	Sales Growth %	ROA	ROE	PBV
Mean	0.17	12.16	11.01	15.89	6.18
Standard Error	0.05	1.73	0.79	1.03	0.65
Standard Deviation	0.27	8.63	3.97	5.15	3.24
Sample Variance	0.07	74.47	15.78	26.55	10.50
Kurtosis	1.85	2.57	1.61	-0.41	0.46
Skewness	1.77	-0.59	0.77	0.19	1.13
Range	0.85	42.50	17.84	19.00	11.58
Minimum	0.00	-13.30	4.29	6.24	2.84
Maximum	0.85	29.20	22.13	25.24	14.42
Count	25.00	25.00	25.00	25.00	25.00

Automobile sector Descriptive Statistics	DER	Sales Growth %	ROA	ROE	PBV
Mean	1.00	14.38	9.10	17.54	5.21

Standard Error	0.27	2.17	1.10	1.12	0.66
Standard Deviation	1.37	10.84	5.48	5.60	3.31
Sample Variance	1.87	117.57	30.07	31.30	10.94
Kurtosis	-0.20	-0.51	-1.24	0.35	3.30
Skewness	1.10	-0.06	0.31	-0.53	1.87
Range	3.93	40.98	18.51	22.26	13.17
Minimum	0.00	-6.98	1.08	4.35	1.90
Maximum	3.93	34.00	19.59	26.61	15.07
Count	25.00	25.00	25.00	25.00	25.00

FMCG sector Descriptive Statistics	**DER**	**Sales Growth %**	**ROA**	**ROE**	**PBV**
Mean	0.26	14.72	14.94	26.55	12.86
Standard Error	0.07	2.42	1.77	3.64	1.81
Standard Deviation	0.33	12.10	8.87	18.22	9.03
Sample Variance	0.11	146.46	78.59	332.10	81.55
Kurtosis	-0.87	0.36	0.73	-0.46	-0.50
Skewness	0.89	0.78	0.72	0.83	0.99
Range	0.96	48.50	35.56	59.79	26.13
Minimum	0.00	-4.20	3.88	5.90	4.05
Maximum	0.96	44.30	39.44	65.69	30.18
Count	25	25	25	25	25

Descriptive stats provide give a general idea of how financially healthy and structured the companies' capital is across the 25 companies of five sectors (IT, Infrastructure, Pharmaceuticals, Automobile, and FMCG).

- Capital Structure (DER): The IT sector maintains the lowest leverage with a mean Debt-to-Equity Ratio (DER) of 0.056, reflecting a preference for internal funding or equity. On the other hand, automobile sector shows a higher average leverage (Mean DER = 1). Infrastructure sector shows high volatility (S.D. = 11.38), likely due to heavy capital investment requirements and varying debt levels among firms.
- Firm Performance (ROA, ROE, PBV): The IT and FMCG sectors lead in performance, with average ROEs of 25.9% and 26.5% respectively. The infrastructure sector shows the lowest average ROA (2.61%), indicating lower asset efficiency compared to service or consumer-oriented sectors.

Table 10: Correlation

IT sector Correlation	DER	Sales Growth %	ROA	ROE	PBV
DER	1				
Sales Growth %	0.083040902	1			
ROA	-0.621010969	0.13274511	1		
ROE	-0.601269491	0.14347356	0.993290395	1	
PBV	-0.558864236	0.141501617	0.905985651	0.916374346	1

Infrastructure sector Correlation	DER	Sales Growth %	ROA	ROE	PBV
DER	1				
Sales Growth %	-0.198875218	1			
ROA	0.579488207	0.2074683	1		
ROE	0.551303546	0.004618519	0.928885076	1	
PBV	0.916753529	-0.248493428	0.58636094	0.610037674	1

Pharmaceuticals sector Correlation	DER	Sales Growth %	ROA	ROE	PBV
DER	1				
Sales Growth %	0.038518951	1			
ROA	-0.32822409	0.436003949	1		

ROE	0.372408024	0.423206985	0.708690655	1	
PBV	0.429432351	0.19259652	0.349837383	0.658084959	1

Automobile sector Correlation	DER	Sales Growth %	ROA	ROE	PBV
DER	1				
Sales Growth %	0.304924427	1			
ROA	-0.722383602	-0.146083607	1		
ROE	0.278813831	0.202521646	0.409078419	1	
PBV	0.654825657	0.173219422	-0.181362846	0.613932943	1

FMCG sector Correlation	DER	Sales Growth %	ROA	ROE	PBV
DER	1				
Sales Growth %	0.359817987	1			
ROA	0.064944933	-0.352674316	1		
ROE	0.520554668	-0.249980294	0.832830268	1	
PBV	0.713090105	-0.079520881	0.448436111	0.833437877	1

A correlation analysis was done to find out how strongly and in which direction the relationship exists between Capital Structure, measured by DER and performance indicators.

- Negative Correlation for IT & Automobile sector: In the IT sector, DER has a strong negative relationship with ROA (r = -0.62) and PBV (r = -0.55). This means that when debt levels go up, both the market value and profitability of companies tend to go down. Similar trends are seen in the automobile sector for ROA (r = -0.72).
- Positive Correlation for FMCG & Infrastructure sector: Interestingly, the FMCG sector shows a positive correlation between DER and ROE (r = 0.52) and PBV (r = 0.71). This indicates that in this sector, financial leverage is effectively used to amplify shareholder returns and market value.

- Pharmaceuticals sector: Shows a weak mixed relationship, suggesting that capital structure might not be the primary driver of performance in this R&D-heavy industry.

Table 11: Regression Analysis

Estimation result of the IT sector when performance is measured by return on assets

Regression	
Multiple R	0.647967838
R Square	0.419862318
Adjusted R Square	0.367122529
Standard Error	5.674544391
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	512.696675	256.3483375	7.961016238	0.002505197
Residual	22	708.409989	32.20045404		
Total	24	1221.106664			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	18.61523406	1.914406705	9.723761417	2.0047E-09
DER	-62.65831033	16.0431513	-3.905611132	0.000759019
Sales Growth %	0.170033181	0.149288368	1.138957998	0.266971208

Estimation result of the IT sector when performance is measured by return on equity

Regression	
Multiple R	0.63181457
R Square	0.399189651
Adjusted R Square	0.344570528
Standard Error	9.46076088

Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	1308.328135	654.1640673	7.308606053	0.003682235
Residual	22	1969.131921	89.50599643		
Total	24	3277.460056			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	28.95370341	3.191752997	9.07141105	6.89413E-09
DER	-99.59110499	26.74759554	-3.723366642	0.001181349
Sales Growth %	0.292301229	0.248897789	1.174382588	0.252797793

Estimation result of the IT sector when performance is measured by price to book value

Regression	
Multiple R	0.589817483
R Square	0.347884663
Adjusted R Square	0.288601451
Standard Error	3.609047904
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	152.868795	76.43439752	5.868181711	0.009069191
Residual	22	286.554989	13.02522677		
Total	24	439.423784			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	7.739698481	1.217575374	6.356648343	2.13738E-06
DER	-33.93485311	10.20355073	-3.32578864	0.003068346
Sales Growth %	0.103989553	0.094948393	1.095221837	0.285265225

Estimation result of the infrastructure sector when performance is measured by return on assets:

Regression	
Multiple R	0.666513073
R Square	0.444239676
Adjusted R Square	0.393716011
Standard Error	2.821779473
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	140.0227574	70.01137869	8.792704754	0.001562295
Residual	22	175.1736666	7.962439392		
Total	24	315.196424			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	2.668074739	0.677247936	3.939583421	0.000698783
DER	0.205784217	0.05163758	3.985163855	0.000625351
Sales Growth %	0.062635416	0.03023232	2.071803181	0.050209874

Estimation result of the infrastructure sector when performance is measured by return on equity:

Regression	
Multiple R	0.56349655
R Square	0.317528362
Adjusted R Square	0.255485485

Standard Error	6.776884245
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	470.0896945	235.0448472	5.117885904	0.014959969
Residual	22	1010.375522	45.92616007		
Total	24	1480.465216			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	10.48990526	1.626502322	6.449363841	1.72944E-06
DER	0.396751509	0.124014617	3.199231813	0.004139563
Sales Growth %	0.048061946	0.072606996	0.661946488	0.514880045

Estimation result of the infrastructure sector when performance is measured by price to book value:

Regression	
Multiple R	0.919236825
R Square	0.844996341
Adjusted R Square	0.830905099
Standard Error	4.715938761
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	2667.300051	1333.650026	59.96606675	1.24097E-09
Residual	22	489.2817247	22.2400784		
Total	24	3156.581776			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	1.981236795	1.131860169	1.750425405	0.093980082
DER	0.909914951	0.086300034	10.54362217	4.56816E-10
Sales Growth %	-0.04064493	0.050526191	-0.804432901	0.429754762

Estimation result of the pharmaceuticals sector when performance is measured by return on assets

Regression	
Multiple R	0.556160132
R Square	0.309314093
Adjusted R Square	0.246524465
Standard Error	3.44795177
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	117.128925	58.56446252	4.926197249	0.017064224
Residual	22	261.544171	11.88837141		
Total	24	378.673096			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	9.375207059	1.276746873	7.343042897	2.37517E-07
DER	-5.14267976	2.639086501	-1.948659036	0.064202838
Sales Growth %	0.206817635	0.081618673	2.533949974	0.018908202

Estimation result of the pharmaceuticals sector when performance is measured by return on equity:

Regression	
Multiple R	0.553267067
R Square	0.306104448

Adjusted R Square	0.243023034
Standard Error	4.482681451
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	195.0176743	97.50883713	4.852529912	0.017957056
Residual	22	442.0775257	20.09443299		
Total	24	637.0952			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	11.74261976	1.659898371	7.074300427	4.26803E-07
DER	6.884889521	3.431075866	2.006627014	0.057234594
Sales Growth %	0.244472446	0.106112422	2.303900354	0.031051474

Estimation result of the pharmaceuticals sector when performance is measured by price to book value:

Regression	
Multiple R	0.464169846
R Square	0.215453646
Adjusted R Square	0.144131251
Standard Error	2.997947535
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	54.3007687	27.15038435	3.020841406	0.069311403
Residual	22	197.7291673	8.987689423		
Total	24	252.029936			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	4.497949122	1.110114177	4.05178964	0.000531589
DER	5.131773926	2.294650099	2.236408038	0.035786996
Sales Growth %	0.066210334	0.070966335	0.932982299	0.360956378

Estimation result of the automobile sector when performance is measured by return on assets

Regression	
Multiple R	0.726571579
R Square	0.52790626
Adjusted R Square	0.484988647
Standard Error	3.9354978
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	381.0224795	190.5112397	12.30045723	0.000259604
Residual	22	340.7391445	15.48814293		
Total	24	721.761624			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	11.50411241	1.352884753	8.503394234	2.11228E-08
DER	-2.994190827	0.616260463	-4.858645014	7.423E-05
Sales Growth %	0.041368457	0.077793347	0.531773717	0.600211974

Estimation result of the automobile sector when performance is measured by return on equity

Regression	
Multiple R	0.304893177

R Square	0.092959849
Adjusted R Square	0.010501654
Standard Error	5.565572976
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	69.84114392	34.92057196	1.12735731	0.341894118
Residual	22	681.4632561	30.97560255		
Total	24	751.3044			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	15.60247147	1.913246864	8.154970362	4.28673E-08
DER	0.978236296	0.871514292	1.122455827	0.273769946
Sales Growth %	0.066849251	0.110015193	0.607636542	0.549650024

Estimation result of the automobile sector when performance is measured by price to book value:

Regression	
Multiple R	0.655414472
R Square	0.42956813
Adjusted R Square	0.377710687
Standard Error	2.609476423
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	112.8126256	56.40631279	8.283635046	0.002080854
Residual	22	149.8060784	6.809367201		
Total	24	262.618704			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	3.731088367	0.89704557	4.1593075	0.000408885
DER	1.604058414	0.408618485	3.925564976	0.000723042
Sales Growth %	-0.008897551	0.05158176	-0.172494129	0.864626111

Estimation result of the FMCG sector when performance is measured by return on assets

Regression	
Multiple R	0.408236124
R Square	0.166656733
Adjusted R Square	0.090898254
Standard Error	8.45258536
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	314.3407921	157.1703961	2.199842646	0.134605635
Residual	22	1571.816384	71.44619927		
Total	24	1886.157176			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	18.04161286	2.774904479	6.501705911	1.53527E-06
DER	5.866050347	5.552536949	1.056463091	0.302220437
Sales Growth %	-0.316434111	0.152805475	-2.070829672	0.050308854

Estimation result of the FMCG sector when performance is measured by return on equity

Regression	
Multiple R	0.70045294
R Square	0.490634321
Adjusted R Square	0.444328351
Standard Error	13.58445914
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	3910.530081	1955.265041	10.59548721	0.000598862
Residual	22	4059.825663	184.5375301		
Total	24	7970.355744			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	27.52135627	4.459650499	6.171191279	3.27495E-06
DER	38.37388451	8.923685251	4.300228374	0.000289788
Sales Growth %	-0.756416308	0.245579269	-3.080130959	0.005473329

Estimation result of the FMCG sector when performance is measured by price to book value:

Regression	
Multiple R	0.798914131
R Square	0.638263788
Adjusted R Square	0.605378678
Standard Error	5.672787219
Observations	25

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	2	1249.176738	624.5883688	19.40889921	1.38775E-05
Residual	22	707.9713263	32.18051483		
Total	24	1957.148064			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	10.98515733	1.862322827	5.898632167	6.17598E-06
DER	23.10211445	3.726476492	6.199452619	3.06796E-06
Sales Growth %	-0.288099255	0.102552404	-2.809288183	0.010217662

Multiple linear regression was used to examine how DER (IV) and Sales Growth (Control Variable) affect firm performance (DVs).

1. Impact on Profitability (ROA & ROE):

- IT Sector: The model for ROA is significant ($p < 0.001$) with an R^2 of 41.9%. The DER coefficient is negative (-62.6), confirming that high debt significantly hinders profitability in IT firms.
- FMCG Sector: DER has a significant positive impact on ROE ($p = 0.0002$). For every unit increase in DER, ROE increases by 38.37%, supporting the trade-off theory where debt provides tax shields that benefit shareholders in stable industries.

2. Impact on Market Valuation (PBV):

- Infrastructure: The model shows a very high R^2 (84.5%). DER has a strong positive effect on PBV (Coefficient = 0.909, $p < 0.05$), which means investors in this sector tend to favor companies that can effectively use debt to fund big projects.
- Automobile: Conversely, while DER helps market value (PBV Coefficient = 1.60), it significantly hurts ROA (Coefficient = -2.99, $p < 0.05$), indicating a "leverage paradox" where debt improves market perception but strains operational efficiency.

Table 12: Comparison Between the Findings of Primary and Secondary Data

Dimension	Primary Data (Perceptual Analysis: n = 126 responses)	Secondary Data (Financial Analysis: n = 125 firm observations)	Relationship / Interpretation
Reliability of Measures	Cronbach's α: DER = 0.923, ROA = 0.893, ROE = 0.948, PBV = 0.974, Sales Growth = 0.937	Not applicable (objective financial data)	High reliability confirms primary data is statistically sound and comparable with secondary analysis
General View on Capital Structure (DER)	High agreement: Mean scores 4.06–4.21	Mean DER varies widely across sectors: IT 0.06, Infra −3.87, Auto 1.00, FMCG 0.26	Perception of "optimal DER" contrasts with large inter-sector variation in actual leverage
DER → ROA	Pearson r = 0.977 (very strong positive) Regression β = 0.901, p < 0.001, R^2 = 0.956	IT: β = −62.66, p < 0.001, R^2 = 0.42 Auto: β = −2.99, p < 0.001, R^2 = 0.53 Infra: β = +0.21, p < 0.001, R^2 = 0.44	Managers expect leverage to improve asset efficiency, but financial data shows ROA impact is sector-dependent
DER → ROE	Pearson r = 0.957 Regression β = 0.660, p < 0.001, R^2 = 0.940	FMCG: β = +38.37, p < 0.001, R^2 = 0.49 Infra: β = +0.40, p < 0.01 IT: β = −99.59, p < 0.01 Auto: Insignificant (p > 0.05)	Strong alignment in FMCG & Infra supports trade-off theory; misalignment in IT & Auto
DER → PBV	Pearson r = 0.969 Regression β = 0.714, p < 0.001, R^2 = 0.958	Infra: β = +0.91, p < 0.001, R^2 = 0.845 FMCG: β = +23.10, p < 0.001, R^2 = 0.64 IT: β = −33.93, p < 0.01	Strong convergence: both managers and markets value capital structure, but only when debt is productive
Sales Growth → Performance	Sales Growth–ROA r = 0.921 Sales Growth–ROE r = 0.945 Sales Growth– PBV r = 0.949	Significant in Infra (ROA p ≈ 0.05), Pharma (ROA p < 0.05); Often weaker than DER	Primary data overstates growth effects; secondary data shows growth without efficiency is insufficient
Model Strength (Overall)	Very high explanatory power: R^2 between 94%–	Moderate to high explanatory power: R^2 ranges 31%–84% depending on sector	Primary models capture perceptions; secondary models
	96%, F-values 961–1400, p < 0.001		reflect real-world constraints
Sectoral Variation	Not explicitly captured (aggregated responses)	Clear variation: IT & Auto (negative leverage effects), Infra & FMCG (positive leverage effects)	Explains why primary data is optimistic while secondary data is nuanced

The primary data demonstrates extremely strong positive relationships between capital structure, sales growth, and

firm performance, with R^2 values exceeding 95% and highly significant coefficients ($p < 0.001$).
However, secondary data analysis shows that the effect of leverage on performance varies a lot depending on the sector. While FMCG & Infrastructure firms benefit significantly from debt (e.g., FMCG DER → ROE $\beta = 38.37$, $p < 0.001$), IT and automobile firms experience profitability deterioration with higher leverage (e.g., IT DER → ROA $\beta = -62.66$, $p < 0.001$). This divergence highlights the difference between managerial perceptions and financial realities.

Conclusion

This study looks at how a company's financial structure affects its overall performance by examining the between the debt–equity ratio (DER), sales growth, and key performance indicators: ROA, ROE and PBV. Using both primary perception-based data and secondary financial data across five sectors, the research provides strong empirical evidence supporting the significance of financing decisions in determining firm success.
In the primary data analysis, the reliability analysis showed that the survey was very consistent as the Cronbach's alpha scores were above the recommended levels. Descriptive statistics revealed that respondents strongly agree that companies gain the most advantage by having a good balance of debt and equity, but they also need to be aware of the dangers that come from having too much debt. Respondents also acknowledged that efficient asset utilization improves profitability and that balanced capital structures positively influence market valuation.
Correlation analysis demonstrated a strong positive association between DER and firm performance indicators. Similarly, sales growth exhibited strong positive relationships with ROA, ROE and PBV, indicating that growth acts as a key channel through which financial leverage enhances performance.
Regression analysis further confirmed these relationships. Debt to equity ratio emerged as the most influential predictor across all models, significantly improving profitability, shareholder returns, and market valuation, i.e. ROA, ROE and PBV. Sales growth was also found to be a significant contributor, reinforcing the idea that financing decisions that support expansion can enhance firm performance. The high R^2 values indicate that the selected variables explain a substantial portion of variation in performance outcomes.
Coming to the secondary data analysis, sectoral analysis revealed notable differences in capital structure patterns and performance outcomes. Low-leverage sectors such as IT exhibited strong profitability and market valuation, whereas capital-intensive sectors like infrastructure showed weaker performance metrics and higher financial risk. These findings confirm that optimal leverage levels vary across industries depending on operational structure, asset intensity, and revenue stability.
Overall, it can be said that having the right mix of capital sources can greatly improve how well a company performs, especially when this mix is carefully managed. Moderate use of debt can enhance efficiency, improve shareholder returns, and increase firm value. However, excessive reliance on debt may elevate financial risk and reduce profitability, highlighting the importance of maintaining a balanced financing mix.
The results support theoretical perspectives that emphasize optimal leverage rather than extreme financing choices. Firms should adopt capital structures aligned with their industry characteristics, growth strategies, and risk tolerance levels. Managers should carefully evaluate borrowing decisions to ensure that the benefits of leverage outweigh associated costs. Investors should consider capital structure as a key indicator of financial health and growth potential when making investment decisions.
In conclusion, achieving an optimal capital structure is not a one-time decision but a dynamic process requiring continuous evaluation in response to market conditions, growth

opportunities, and financial risk. By maintaining a strategic balance between debt and equity, firms can enhance performance, sustain growth, and maximize shareholder value.

Limitations

1. The study is based on a relatively small sample of 25 companies across five sectors. Although the firms were purposively selected to represent diverse industries, the sample size limits the generalizability of the findings to all firms or sectors within the economy.

2. The secondary data analysis covers a limited time period (2021–2025). Financial performance and capital structure decisions are influenced by macroeconomic conditions such as interest rate cycles, inflation, regulatory changes, and economic shocks. A longer study period might lead to better clarity.

3. The primary data collected through questionnaires reflects respondents' perceptions rather than actual financial behaviour. Although reliability tests confirmed strong internal consistency, perceptual responses are influenced by personal understanding and academic exposure.

4. Another limitation relates to the variables used in the study. Only two independent variables (DER and sales growth) were considered to explain firm performance. Factors such as firm size, asset structure, liquidity, corporate governance, macroeconomic conditions, and managerial efficiency also effect firm performance.

5. Primary data analysis shows linear relationships between capital structure and performance indicators. In practice, the relationship may be nonlinear, where moderate debt improves performance but excessive leverage reduces profitability due to financial distress costs.

6. Sectoral differences in accounting practices, capital intensity, regulatory environments, and risk profiles may influence financial ratios, making direct comparison across sectors challenging.

Recommendations

Following is the list of recommendations for corporate managers and investors:

For Corporate Managers

1. Maintain an Optimal Debt–Equity Balance

Firms should avoid excessive reliance on debt and instead strive for an optimal capital structure that minimizes cost of capital while controlling financial risk.

2. Adopt Sector-Specific Financing Strategies

Since the impact of leverage varies across industries, managers should align financing decisions with industry characteristics. Capital-intensive sectors may benefit from leverage, while technology-driven firms may perform better with lower debt levels.

3. Use Debt Strategically to Support Growth

Debt financing should be directed toward productive investments such as capacity expansion, technology upgrades, and market expansion to ensure that leverage contributes positively to performance.

4. Strengthen Risk Management Practices

Firms should monitor interest obligations, liquidity position, and solvency ratios to prevent financial distress resulting from excessive borrowing.

5. Transparency and Investor Communication

Clear disclosure of financing strategies and capital structure policies improves investor confidence and can positively influence market valuation.

For Investors

1. Investors should evaluate a firm's capital structure alongside profitability and growth indicators when making investment decisions.
2. Sectoral context should be considered, as higher leverage may be beneficial in stable industries but risky in volatile sectors.
3. Firms with balanced capital structures and consistent growth performance may offer better long-term value.

References

1. Bhuvanashree, S., & Reddy, R. (2025). Capital structure and financial performance: A comparative analysis of Indian companies across sectors. *Journal of Financial Management and Analysis*, 18(1), 45–60.
2. Gnanaprasuna, E., Perera, S., Silva, D., & Fernando, K. (2025). Impact of capital structure on firm performance: Evidence from listed firms in India. *International Journal of Financial Research*, 16(2), 112–128.
3. Arhinful, R., Amin, H. I. M., Mensah, L., Gyamfi, B. K., & Obeng, H. A. (2025). Optimal capital structure and corporate performance: Evidence from NYSE listed firms. *Global Finance Journal*, 54, 100705.
4. Kamble, R., Mahankal, M., & Jojare, Y. (2025). Financial ratio analysis and capital structure decisions of selected Indian firms. *Asian Journal of Accounting Research*, 10(1), 67–81.
5. Malik, T. (2025). Strategic financial planning, corporate governance, and firm performance in Saudi business groups. *Journal of Corporate Finance Studies*, 9(3), 201–219.
6. Barakzai, A., & Doğukanli, H. (2025). Capital structure and firm performance in emerging NEST economies. *Emerging Markets Finance and Trade*, 61(4), 845–860.
7. Ekanayake, N. P. K., Silva, N. K. L., & Tholangamuwa, T. G. A. S. (2025). Capital structure and financial performance of manufacturing companies in South Asia. *South Asian Journal of Business Studies*, 14(1), 59–74.
8. Nikmah, C., & Hung, R. J. (2025). Corporate governance, capital structure, and firm performance: Evidence from Indonesian Shariah indexed firms. *Journal of Islamic Accounting and Business Research*, 16(2), 233–250.
9. Ashiq, A., Guoxing, Z., Tabasam, A. H., & Tahir, S. H. (2025). Managerial ability, corporate social responsibility, and capital structure: Implications for firm performance in Pakistan.
10. *Sustainability*, 17(3), 1452.
11. Nguyen, T. X., Tran, M. D., & Do, D. T. (2025). Capital structure and firm performance: Evidence from Vietnam's animal feed industry. *Asian Economic and Financial Review*, 15(2), 178–193.
12. Prasad, N., Verma, M. K., Tanwar, N., & Kumar, M. (2024). Capital structure and financial performance of pharmaceutical companies in India. *International Journal of Pharmaceutical and Healthcare Marketing*, 18(2), 310–325.
13. Hasan, M. M., & Ohee, A. A. (2024). Capital structure and financial performance of manufacturing firms in Bangladesh. *Journal of Asian Business and Economic Studies*, 31(1), 75–90.
14. Prenaj, V., Miftari, I., & Pula, L. (2024). The relationship between capital structure and firm performance:

Evidence from Kosovo firms. *Economic Studies Journal*, 33(4), 421–436.
15. Yao, A. (2023). Capital structure theories and firm performance: A comparative analysis of MM theory and CAPM. *Journal of Financial Economics and Policy*, 15(3), 340–356.

16. Olusola, B. E., Mengze, H., Chimezie, M. E., & Chinedum, A. P. (2022). Ownership structure, capital structure, and firm performance: Evidence from Hong Kong listed companies. *Journal of Asian Finance, Economics and Business*, 9(5), 201–210.
17. Cuevas-Vargas, H., Cortés-Palacios, H. A., & Lozano-García, J. J. (2022). Capital structure, innovation, and firm performance in manufacturing SMEs. *Journal of Business Research*, 139, 1310–1318.
18. Vidhyadevi, B., & Swarupa, P. U. (2022). Impact of capital structure on profitability of automobile sector companies in India. *International Journal of Business and Management Invention*, 11(6), 52–60.
19. Kalash, I. (2021). Environmental performance and financial performance: The role of leverage in Turkish firms. *Journal of Environmental Management*, 295, 113123.
20. Riaz, M., Jinghong, S., & Akhtar, M. N. (2021). Determinants of capital structure: Evidence from manufacturing firms in G-7 countries. *Journal of Risk and Financial Management*, 14(5), 210.
21. Kafle, N., & Ghimire, S. (2020). Capital structure and firm performance: Evidence from companies listed on the Bombay Stock Exchange. *International Journal of Financial Studies*, 8(4), 66.
22. Nini, Patrisia, D., & Nurofik, A. (2020). Capital structure and firm value: Evidence from Indonesian listed companies. *International Journal of Economics and Financial Issues*, 10(5), 145–152.

= Strongly Disagree | 5 = Strongly Agree

Section A: Background / General Information (3 Questions)
1. I have studied subjects related to Corporate Finance or Financial Management.
2. I understand basic financial ratios such as DER, ROA, and ROE.
3. I am familiar with how companies raise funds through debt and equity.

Section B: Capital Structure – DER (4 Questions)
4. Companies usually use a mix of debt and equity for financing.
5. A higher debt–equity ratio increases financial risk for firms.
6. An optimal DER helps firms operate more efficiently.
7. Debt financing is attractive due to tax benefits on interest.

Section C: Profitability – ROA (3 Questions)
8. Efficient use of assets improves a firm's return on assets.
9. High interest burden negatively affects asset profitability.
10. Firms with lower debt generally show better ROA stability.

Section D: Profitability – ROE (2 Questions)
11. Financial leverage can increase returns to shareholders.
12. ROE improves when debt is used effectively.

Section E: Market Valuation – PBV (3 Questions)
13. Investors value firms with a balanced capital structure more positively.
14. Capital structure influences a firm's market valuation.
15. Firms with stable profitability usually have higher PBV.

Section F: Sales Growth (2 Questions)
16. Companies use debt financing to support sales growth and expansion.
17. Higher sales growth improves overall firm performance.