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Capital structure and leverage risk of a conglomerate company: An empirical study of Aditya Birla Group

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Abstract
The study explores how a leverage risk of conglomerate firm is influenced by financial growth in context of Aditya Birla Group. It uses liability-asset growth and equity-asset growth which meant to influence Debt-Equity ratio to examine how company is sustained through leverage risk. While recent research highlights liquidity and market factors like the debt-equity ratio, it often ignores structural elements related to long-term leverage risk. The study implemented quantitative approach based on secondary data to examine leverage risk in Aditya Birla Group, using data from MoneyControl from 2017 to 2025. Results show that the firm's leverage fluctuates over time, influencing financial risk and capital structure. The leverage risk is significantly influenced by the composition of the capital structure, with higher debt levels being associated with lower profitability. However, no significant structural differences were found between the pre- and post-periods, indicating overall financial stability.

Keywords: Leverage risk, capital structure, debt–equity ratio, financial stability, Aditya Birla Group

Introduction
Debt-equity financing is the process by which a company raises capital by borrowing money from loans, bonds, or debentures, with the promise to repay the principal amount plus interest over time (Equirus,2025) [7]. It allows businesses to fund operations, expand, or invest in future projects without giving or selling ownership. Debt-equity financing alters the risk profiles of companies by elevating equity risk through the employment of financial leverage. This research utilizes the Debt-to-Equity Ratio (DER) to measure leverage risk, LAG to signify long-term structural leverage risk, and EAG to assess the earnings capability necessary for capital structure, highlighting the importance of sustainability and the stability of that structure. According to the Pecking Order Theory, organizations aiming for profitability tend to prefer internal funds over external borrowing in which an increased Debt-to-Equity Ratio could notably diminish profitability. (Rahmawati, Rika & Herlinawati, Erna & Suryaningprang, Andre, 2025). This study focuses on Aditya Birla Group Limited, a diversified conglomerate, and examines the effectiveness of debt-equity financing in its capital expansion.

"The Aditya Birla group is diversified conglomerate headquarters in Mumbai, India. With operations spanning 36 countries, the group has established a strong presence in sectors like metals, cement, textiles, carbon black, telecom, and financial services. Its flagship companies include Hindalco Industries, UltraTech Cement, Grasim Industries and Aditya Birla Capital. The group's commitment to excellence and innovation has positioned it as a leader in various industries, both in India and globally." (Bajaj Finserv,2025) [8].

Research Gap
Current studies on debt-equity financing primarily concentrate on conventional leverage indicators, such as the debt–equity ratio (DER), either on their own or by giving priority to liquidity and market-driven metrics. While DER serves as a valuable tool for assessing leverage levels, depending solely on it often overlooks the structural factors related to long-term leverage and the firm's ability to maintain earnings, which are crucial for handling debt-related risks. As a result, it is required to conduct a more in-depth assessment of debt-equity financing using a single framework that considers the amount of debt utilized, the long-term risk of that debt, and the company's potential to create earnings.

Research Aim
The thesis titled, "Capital Structure and Leverage Risk: An Empirical Study of Aditya Birla Group" aims to analyze financial risk of conglomerate company through debt-equity financing by explaining how financial growth indicators like Liability-Asset Ratio and Equity-Asset Ratio evaluates long term leverage risk and earning sustainability while using Debt-Equity Ratio as measure of debt-equity capital structure.

Literature-Review
Debt-equity financing is widely used in various firms, including conglomerate companies, to assess and operate their financial risk of a firm ensuring C of growth without relying solely on equity and satisfy their shareholders with tax benefits and dividend potential.

Dr. Smita Meena (2025) [1] examined a firm's capital structure by analyzing shareholder profitability through metrics like Earnings Per Share (EPS), Return on Net Worth (RONW), and Return on Investment (ROI). However, external factors such as market conditions and macroeconomic elements were not taken into account, which can influence a business's profitability and lead to a less comprehensive understanding of a company's performance. Nonetheless, it is crucial for conglomerate companies to assess their debt-equity financing to evaluate their financial risk over the long term.

Baffa, Asma'u & Isiaka, Lasisi & Ismail, Kabir. (2023) [4] provides comprehensive study of company structure. The study identifies Debt Equity Ratio (DER) as an independent

variable and Return on Equity (ROE) as a performance indicator. They used Net Expected Dividend (NED) as moderate variable for adding depth in financial risk. Although it assesses debt-equity financing, it has certain limitation like studying these variables till 2019 for 10 years excluding likes of major COVID-19 and DER is preferred over ROE as it provides clear indication of financial risk in debt-equity financing.

Khaire, Megha, Shruti Dinkar Dhobaley, and Pragati Rahul Dofe. (2025) [3] evaluates comprehensive structure of debt-equity financing through quantitative data (DER, financial metrics) and qualitative insights (employee perceptions). Risk-adjusted return metrics including the Sharpe Ratio, Treynor Ratio, and Jensen's Alpha have been studied as investment performance. However, Employee perceptions on debt effectiveness and risks may introduce bias or lack complete objectivity.

Rahmawati, Rika & Herlinawati, Erna & Suryaningprang, Andre. (2025) explores the impact of financial ratios such as Current Ratio, Debt-Asset Ratio, and Debt-Equity Ratio on the profitability of pharmaceutical companies listed on the Indonesian Stock Exchange, specifically through Return on Assets. However, it is important to assess financial risk associated with borrowing to gain a clearer understanding of the sustainability of capital structure, especially for conglomerates and firms undergoing restructuring.

Wang, Zhixiao, Zhang, Jianing, Li, Chuyi, Jiang, Qinling, Ding, Xinhuiling, and Hu, Kaiyang. (2026) [2] The asset-liability ratio highlights the overall influence of debt-equity financing structure on the financial stability of corporations. It suggests that targeted long-term low-interest loans should be provided to facilitate debt restructuring in asset-light sectors that are viable. The study's limitations include a failure to fully consider the effects of other aspects of debt structure, such as the maturity and type of debt. Additionally, whereas the previous research relies on a single proxy (the asset–liability ratio) to signify the debt-equity financing structure, this method may not adequately represent the complex nature of debt structure.

Acharya, Parameshwar, and Abdul Rahman (2021) [6] calculate CAGR for every financial metric of automobile firms. This evaluation relies only on publicly accessible financial data, which excludes qualitative aspects such as market perception or technological advancements. The forecast till 2021 is derived purely from historical CAGR trends and may overlook market disruptions or changes in policy. Therefore, it's important to highlight debt-equity financing indicators to assess financial risk and the stability of the firm, which CAGR alone cannot address.

Methodology

The research methodology for this study is framed to analyze the risk on debt-equity financing at Aditya Birla Group Company, A quantitative approach is adopted, taken from secondary data to compute financial risk of a conglomerate company. The research examines debt-equity financing and its associated financial growth indicators, specifically Liability-Asset Growth (LAG) and Equity-Asset Growth (EAG), which impact the Debt-Equity Ratio (DER) of a firm. The study is based on a data from MoneyControl, a leading financial information platform, for ascertaining balance sheet of Aditya Birla Group from 2017 to 2025. The study includes Liability Asset Growth (LAG), Equity-Asset Growth (EAG), and Debt-Equity Ratio (DER) to capture leverage intensity, long-term sustainability, by avoiding short term liquidity and market sentiment effects as they are influenced by temporary working Capital movement and investor sentiment, which do not accurately reflect long term leverage risk and earning sustainability. Liability Asset Growth (LAG) is calculated using the ratio of liability growth to asset growth, which facilitates asset expansion and impacts the framework of debt-equity financing through the growth of liabilities. If LAG rises, DER will also increase, leading to greater debt-equity financing. Equity Asset Growth (EAG) is calculated using the ratio of equity growth to asset growth, in which equity growth is compared to assets. Higher EAG reduces debt-equity financing as company is relied on its assets contributed by shareholder rather than borrowing. The Debt–Equity Ratio (DER) serves as the dependent variable because it reflects the leverage framework of the firm, which is affected by liability and equity growth

Data Analysis

The analysis begins with use of Descriptive Statistics to summarize about average value and variances of Liability-Asset Growth (LAG), Equity-Asset Growth (EAG), and Debt-Equity Ratio (DER) which helps to find abnormal values for regression analysis. Correlation is measured to find out whether changes in Liability-Asset Growth, Equity-Asset Growth are associated with changes of Debt-Equity Ratio. The analysis of regression is conducted to determine the relationship of cause and effect between the independent variables (EAG, LAG) and the Dependent variable (DER). It also reveals whether the Liability Asset Ratio and Equity Asset Ratio have a positive or negative impact on the Debt-Equity Ratio. Alongside paired sample t-test is used to compare these financial indicators to check whether their relation is meaningful or accidental.

Tools and Software

JASP software is used in this study for data analysis due to its user-friendly interface, reliable statistical computations, and ability to generate publication-ready outputs. It supports descriptive statistics, correlation, regression, and paired sample t-tests of three financial variables, thereby enhancing the accuracy and credibility of the research findings.

Hypothesis

H_0 (Null Hypothesis): Debt-equity financing indicators have no significant impact on the financial performance / financial risk of the selected companies.

H_1 (Alternative Hypothesis): Debt-equity financing indicators have a significant impact on the financial performance / financial risk of the selected companies

Analysis & Result

Descriptive Statistics

The descriptive statistics show that the mean Debt–Equity Ratio is 0.566 with a relatively high standard deviation of 1.489, indicating noticeable fluctuations in leverage during the study period. The skewness (2.986) and kurtosis (8.936) values suggest that DER is positively skewed and highly peaked, meaning there are some extreme high values in certain years. The Liability–Asset Growth Ratio has a mean of 14.19 with high dispersion (SD = 26.99), showing significant variation in liability expansion. The Equity–

Asset Growth Ratio has a lower mean of 1.361 and moderate variability (SD = 1.368), indicating more stable equity growth compared to liabilities

Descriptive Statistics			
	Liability-Asset Growth Ratio	**Equity-Asset Growth Ratio**	**Debt-Equity Ratio**
Valid	9	9	9
Mean	14.19	1.361	0.566
Std. Deviation	26.99	1.368	1.489
Skewness	1.566	1.233	2.986
Std. Error of Skewness	0.717	0.717	0.717
Kurtosis	1.398	0.263	8.936
Std. Error of Kurtosis	1.400	1.400	1.400
Minimum	-10.94	-0.010	0.010
Maximum	69.96	3.720	4.530

Correlation

Correlation analysis reveals that DER has a strong positive and statistically significant relationship with Liability–Asset Growth Ratio (r = 0.786, p = 0.012). This means that as liabilities grow relative to assets, the debt–equity ratio increases significantly. However, DER has a negative and statistically insignificant relationship with Equity–Asset Growth Ratio (r = –0.358, p = 0.344), suggesting that equity growth tends to reduce leverage, but the effect is not strong enough to be statistically confirmed. Additionally, Liability–Asset Growth and Equity–Asset Growth are almost uncorrelated (r = –0.065), indicating no multicollinearity issue between independent variables.

Pearson's Correlations						
			n	**Pearson's r**	**p**	**Covariance**
Debt-Equity Ratio	-	Liability-Asset Growth Ratio	9	0.786	.012	31.584
Debt-Equity Ratio	-	Equity-Asset Growth Ratio	9	-0.358	.344	-0.729
Liability-Asset Growth Ratio	-	Equity-Asset Growth Ratio	9	-0.065	.868	-2.399

Linear Regression

The linear regression model further strengthens this interpretation. The model summary shows R = 0.844 and R^2 = 0.712, meaning 71.2% of the variation in Debt–Equity Ratio is explained jointly by liability and equity asset growth. The ANOVA result (F = 7.433, p = 0.024) confirms that the overall regression model is statistically significant at the 5% level. In the coefficients table, Liability–Asset Growth Ratio has a positive and significant coefficient (β = 0.042, p = 0.013), showing that increases in liability growth significantly increase DER. In contrast, Equity–Asset Growth Ratio has a negative but statistically insignificant coefficient (β = –0.335, p = 0.210), meaning equity growth does not significantly influence DER in this model.

Model Summary - Debt-Equity Ratio				
Model	**R**	**R^2**	**Adjusted R^2**	**RMSE**
M_0	0.000	0.000	0.000	1.489
M_1	0.844	0.712	0.617	0.922
Note. M_1 includes Liability-Asset Growth Ratio, Equity-Asset Growth Ratio				

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**p**
M_1	Regression	12.628	2	6.314	7.433	.024
	Residual	5.097	6	0.850		
	Total	17.726	8			
Note. M_1 includes Liability-Asset Growth Ratio, Equity-Asset Growth Ratio						
Note. The intercept model is omitted, as no meaningful information can be shown.						

Coefficients						
Model		**Unstandardized**	**Standard Error**	**Standardized**	**t**	**p**
M_0	(Intercept)	0.566	0.496		1.140	.287
M_1	(Intercept)	0.422	0.486		0.868	.419
	Liability-Asset Growth Ratio	0.042	0.012	0.766	3.492	.013
	Equity-Asset Growth Ratio	-0.335	0.239	-0.308	-1.404	.210

Paired Samples T-Test

The paired sample t-test results show no significant difference between pre and post values of LAGR, EAGR, and DER (all p-values > 0.05), indicating that structural changes before and after the comparison period are not statistically meaningful.

Paired Samples T-Test					
Measure 1		**Measure 2**	**t**	**df**	**p**
PRE_LAG	-	POST_LAG	-0.215	3	.844
PRE_EAG	-	POST_EAG	1.221	3	.309
PRE_DER	-	POST_DER	-0.879	3	.444
Note. Student's t-test.					

Findings

The study set up that the average Debt- Equity rate of the company is 0.566. still, it shows high variability. This indicates oscillations in fiscal influence during the study period. The descriptive statistics show that the Debt- Equity rate is appreciatively disposed and largely peaked. This suggests that there are extreme influence values in certain times. Correlation analysis reveals a strong positive and statistically significant relationship between the Debt- Equity rate and the Liability- Asset Growth rate ($r = 0.786$, $p < 0.05$). This means that as arrears increase relative to means, the company's influence also increases significantly. In discrepancy, the relationship between the Debt- Equity rate and the Equity- Asset Growth rate is negative but statistically insignificant ($r = -0.358$, $p > 0.05$). This indicates that equity growth tends to reduce influence, but the effect isn't strong. The retrogression analysis shows that 71.2 of the variation in the Debt- Equity rate is explained by the two independent variables ($R^2 = 0.712$). The overall retrogression model is statistically significant ($p = 0.024$). Among the predictors, the Liability- Asset Growth rate has a positive and significant effect on the Debt- Equity rate, while the Equity- Asset Growth rate has a negative but insignificant effect. This confirms that liability growth is the main factor impacting changes in the company's capital structure. The results of the paired sample t- test indicate no significant structural difference between the pre and post ages. This suggests fiscal stability without major structural shifts.

Suggestions

The company should track its liability growth as it significantly affects the Debt- to- Equity Ratio. However, it could raise fiscal threat and impact long- term stability, if arrears increase. operation should concentrate on perfecting equity backing sources, similar as retained earnings or new investments which helps to maintain a balanced capital structure and reduce reliance on external debt. The company may apply a policy for an ideal capital structure to insure fiscal stability and boost investor confidence. Keeping influence situations in check will lower fiscal threat during tough profitable times. unborn fiscal planning should concentrate on long- term sustainability rather of just adding arrears in the short term.

Limitations

The study is limited to the Aditya Birla Group as an empire, which may not reflect the issues of all companies. By fastening on a single company, it fails to represent the debt-equity backing performance of the maturity of empires. The analysis consists of nine years, which doesn't give a comprehensive view of the company's entire fiscal history. Assessing short- term liquidity performance is essential to comprehend the company's capacity to endure through debt-equity backing since assaying long- term debt- equity backing might overlook working capital performance and ignore cash scores. It fails to address all aspects of long-term sustainability.

Conclusion

This study aimed to examine how debt- equity financing could impact a empire company's profitability. The findings show that the company's debt- equity position varied over the times, with some times displaying surprisingly high situations of influence. It discovered that increases in arrears compared to means significantly raise the company's influence. In discrepancy, growth in equity tends to lower influence, although not mainly. Overall, the growth of arrears is the main factor shaping the company's capital structure. There were no major structural changes between the before and latterly ages, indicating fiscal stability. The study suggests covering liability growth's impact on long-term stability and introducing further equity to lessen reliance on borrowing. The exploration is limited to Aditya Birla Group and covers only a nine- time period, so its findings cannot be generalized to all empires or reflect the company's entire fiscal history. also, fastening substantially on long- term debt- equity backing without assessing short-term liquidity may overlook how efficiently working capital is used and the establishment's capability to meet immediate cash requirements. Despite these limitations, the study contributes significantly by showing how fiscal growth pointers, like liability- asset growth and equity- asset growth, illustrate the influence threat of a empire company. This assessment helps estimate the threat in capital structure over the long term.

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